



Qualification Pack



Plumbing Supervisor

QP Code: PSC/Q0114

Version: 2.0

NSQF Level: 5

Indian Plumbing Skills Council || Unit No-606, DLF Prime Tower
Okhla Phase-1 New Delhi-110020



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PSC/Q0114: Plumbing Supervisor

Brief Job Description

A Plumbing Supervisor is responsible for planning, scheduling, organising and directing work. The individual also identifies plumbing requirements and assigns tasks to the workforce. The person ensures that the work is being done in compliance with the industry standards.

Personal Attributes

The individual must be able to work independently on the assignment and be able to do laborious work. The person should be a good listener, team player, willing to take ownership, result oriented and have a positive attitude.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

- [1. PSC/N0143: Prepare for a Plumbing Assignment](#)
- [2. PSC/N0144: Inspect the Plumbing Work to Ensure Compliances](#)
- [3. PSC/N0145: Ensure Effective Repair and Maintenance of Plumbing Systems](#)
- [4. PSC/N0136: Apply Health and Safety Practices at the Workplace](#)
- [5. PSC/N0138: Implement Measures to Work Effectively](#)
- [6. SGJ/N1702: Optimize resource utilization at workplace](#)

Qualification Pack (QP) Parameters

Sector	Plumbing
Sub-Sector	Industrial / Non-Industrial Plumbing
Occupation	Plumbing Systems Installation and Maintenance
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3123.0302



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Minimum Educational Qualification & Experience	10th Class + I.T.I with 4 Years of experience relevant OR 12th Class with 4 Years of experience relevant OR 10th Class (+ 3 years Diploma in Civil or Mechanical Engineering) with 3 Years of experience relevant OR Certificate-NSQF (Plumber-General (Level-4)) with 2 Years of experience relevant
Minimum Level of Education for Training in School	12th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	21 Years
Last Reviewed On	24/02/2022
Next Review Date	24/02/2026
Deactivation Date	24/02/2026
NSQC Approval Date	24/02/2022
Version	2.0
Reference code on NQR	2022/PLUM/WMPS/05462
NQR Version	1.0



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PSC/N0143: Prepare for a Plumbing Assignment

Description

This unit deals in detail with the activities involved in preparing for a plumbing assignment as per the specified standards.

Scope

The scope covers the following :

- Plan for plumbing assignment
- Organise resources for the plumbing tasks

Elements and Performance Criteria

Plan for plumbing assignment

To be competent, the user/individual on the job must be able to:

- PC1.** identify requirements from project documents and briefings provided
- PC2.** survey the site and take measurements for verifying the workplan details
- PC3.** inspect structures to prevent weakening of pipe installations
- PC4.** identify improvements required in plumbing plan/designs based on relevant contextual factors
- PC5.** provide necessary information to relevant authorities about modification required in plumbing plan/design
- PC6.** determine resource requirements such as manpower, type of materials for plumbing tasks and their quantity
- PC7.** schedule the plumbing activities and their supervision in coordination with other teams as per approved work specifications

Organise resources for the plumbing tasks

To be competent, the user/individual on the job must be able to:

- PC8.** ensure that there is no material shortage and enough supplies are available
- PC9.** communicate the manpower requirements to the concerned authority
- PC10.** allocate work to the team as per the plan
- PC11.** select and order materials as per the organisational standards and policies

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** standards, policies, and procedures followed in the company relevant to employment and performance conditions
- KU2.** organization's departments, hierarchy, products, services
- KU3.** workplace hazard reporting and handling procedures



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- KU4.** workplace safety requirements
- KU5.** types of project/planning documents related to plumbing
- KU6.** plumbing drawing and diagrams
- KU7.** standards applicable to fixture and/or piping installation in plumbing
- KU8.** International System of Units (SI) for measurement
- KU9.** types, grades, characteristics and the application of different pipe fittings and fixture supports, plumbing fixtures, fasteners and fixing and jointing techniques
- KU10.** process of main supply of water and drainage
- KU11.** piping and plumbing tools and equipment
- KU12.** various fit off processes and their tools and principles
- KU13.** installation process of pipes and fittings for various plumbing applications
- KU14.** mechanical electrical plumbing (MEP) activities that are performed for a given task
- KU15.** fixture materials and finishes and uses and limitations of each
- KU16.** techniques to inspect the impact of local contextual factors on work plan and requirements, including time, costs and quality
- KU17.** basic planning tools and processes used in industry for planning plumbing jobs
- KU18.** basic calculations and arithmetic operations
- KU19.** factors that influence sequencing and scheduling of plumbing tasks in an assignment
- KU20.** basic material issuance and inventory management principles
- KU21.** importance and basic principles of teamwork and effective communication
- KU22.** different types of teams and workers on a construction site and inter-dependencies for plumbing works

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** read and write brief notes in local language/Hindi/English
- GS2.** read and write common plumbing symbols
- GS3.** fill in relevant forms for material requisitioning, reporting, employment and other purposes
- GS4.** comprehend required quantities, names of materials, equipment and supplies and related forms and formats
- GS5.** provide verbal instructions and information about work related matters in local language or Hindi or English
- GS6.** state information, doubts and concerns about work related matters with clarity and in a professional manner
- GS7.** evaluate adequacy of information available for sound decision making
- GS8.** co-ordinate with a range of team members and activities
- GS9.** plan work activities and communicate to others whose work plans and timelines may be affected
- GS10.** identify the objectives, concerns and priorities of the client
- GS11.** identify array of solutions that addresses needs of the client



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GS12. apply problem solving skills

GS13. seek official and authorised sources of help and guidance to resolve problems that cannot be solved at one's level of authority



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Plan for plumbing assignment</i>	15	24	8	4
PC1. identify requirements from project documents and briefings provided	3	4	1	0.5
PC2. survey the site and take measurements for verifying the workplan details	2	5	2	1
PC3. inspect structures to prevent weakening of pipe installations	2	4	2	1
PC4. identify improvements required in plumbing plan/designs based on relevant contextual factors	3	3	1	0.5
PC5. provide necessary information to relevant authorities about modification required in plumbing plan/design	2	3	1	0.5
PC6. determine resource requirements such as manpower, type of materials for plumbing tasks and their quantity	3	5	1	0.5
PC7. schedule the plumbing activities and their supervision in coordination with other teams as per approved work specifications	-	-	-	-
<i>Organise resources for the plumbing tasks</i>	10	15	4	2
PC8. ensure that there is no material shortage and enough supplies are available	3	4	1	0.5
PC9. communicate the manpower requirements to the concerned authority	2	3	1	0.5
PC10. allocate work to the team as per the plan	2	4	1	0.5
PC11. select and order materials as per the organisational standards and policies	3	4	1	0.5
NOS Total	25	39	12	6



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National Occupational Standards (NOS) Parameters

NOS Code	PSC/N0143
NOS Name	Prepare for a Plumbing Assignment
Sector	Plumbing
Sub-Sector	Industrial / Non-Industrial Plumbing
Occupation	Plumbing Systems Installation and Maintenance
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2026
NSQC Clearance Date	24/02/2022



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PSC/N0144: Inspect the Plumbing Work to Ensure Compliances

Description

This unit deals in detail with the requirement of an individual to inspect the plumbing work for proper execution as per the specified standards.

Scope

The scope covers the following :

- Inspect the work performed
- Coordinate with stakeholders

Elements and Performance Criteria

Inspect the work performed

To be competent, the user/individual on the job must be able to:

- PC1.** evaluate the work at the job site as per the proposed plumbing design
- PC2.** identify the requirements from site engineer and designer for variances from plan and provide inputs wherever necessary
- PC3.** inspect the plumbing materials to ensure suitability of materials as per the task to be performed
- PC4.** evaluate the problematic systems or facilities in various plumbing activities
- PC5.** check whether the fixtures and accessories are being cleaned properly as per work instructions prior to installations
- PC6.** check whether the installations have been done in accordance with industry defined techniques
- PC7.** ensure that the installed materials and fixtures are of correct specifications and standards
- PC8.** test the installed systems to ensure zero leakages and tight connections as per site requirements
- PC9.** ensure that the unwanted waste/debris is disposed as per industry practices
- PC10.** identify gaps and delays with respect to the deliverables and schedules
- PC11.** determine and record additional requirement of resources, materials and supplies at the work site
- PC12.** provide technical inputs/recommendations to the team wherever there is a problem
- PC13.** prepare a report to record the work progress

Coordinate with stakeholders

To be competent, the user/individual on the job must be able to:

- PC14.** share the modifications/changes in the action plan or schedule with all personnel impacted by the same
- PC15.** follow organisational procedure to share the reports and important documents with the team and designated personnel



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Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** standards, policies, and procedures followed in the company relevant to employment and performance conditions
- KU2.** organization's departments, hierarchy, products, services
- KU3.** workplace hazard reporting and hazard handling procedures
- KU4.** workplace safety requirements
- KU5.** individual's role in the workflow
- KU6.** documentation practices followed in the organisation
- KU7.** terminologies and symbols used in the plumbing industry
- KU8.** tools and equipment used in the plumbing industry
- KU9.** correct practices for using plumbing tools and equipment
- KU10.** project documents associated with the plumbing tasks
- KU11.** work to be performed as per the action plan
- KU12.** correct procedure for plumbing installations
- KU13.** techniques to inspect the impact of local contextual factors on work plan and requirements, including time, costs and quality
- KU14.** plumbing design and the procedure for implementation at the work site
- KU15.** steps involved in the inspection at the work site for plumbing tasks
- KU16.** procedure to test the installed plumbing systems and equipment
- KU17.** industry standards for good plumbing practices
- KU18.** problematic situations in plumbing activities
- KU19.** disposing techniques for unwanted wastes generated after any plumbing activity
- KU20.** importance of cleaning plumbing fixtures and accessories prior to installation
- KU21.** risks and safety procedures to be practiced at the workplace
- KU22.** precautions to be taken while working with hazardous substances
- KU23.** importance of personal protective equipment (PPE) in plumbing tasks

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** read and write brief notes in local language/Hindi/English
- GS2.** read and write common plumbing symbols
- GS3.** fill in relevant forms for material requisitioning, reporting, employment and other purposes
- GS4.** comprehend required quantities, names of materials, equipment and supplies and related forms and formats
- GS5.** provide verbal instructions and information about work related matters in local language or Hindi or English
- GS6.** state information, doubts and concerns about work related matters with clarity and in a professional manner



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- GS7.** evaluate adequacy of information available for sound decision making
- GS8.** co-ordinate with a range of team members and activities
- GS9.** plan work activities and communicate to others whose work plans and timelines may be affected
- GS10.** identify the objectives, concerns and priorities of the client
- GS11.** identify array of solutions that addresses needs of the client
- GS12.** apply problem solving skills
- GS13.** seek official and authorised sources of help and guidance to resolve problems that cannot be solved at one's level of authority

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Inspect the work performed</i>	27	43	12	6
PC1. evaluate the work at the job site as per the proposed plumbing design	3	4	1	0.5
PC2. identify the requirements from site engineer and designer for variances from plan and provide inputs wherever necessary	2	3	1	0.5
PC3. inspect the plumbing materials to ensure suitability of materials as per the task to be performed	2	4	1	0.5
PC4. evaluate the problematic systems or facilities in various plumbing activities	2	4	1	0.5
PC5. check whether the fixtures and accessories are being cleaned properly as per work instructions prior to installations	2	3	1	0.5
PC6. check whether the installations have been done in accordance with industry defined techniques	2	3	1	0.5
PC7. ensure that the installed materials and fixtures are of correct specifications and standards	2	3	1	0.5
PC8. test the installed systems to ensure zero leakages and tight connections as per site requirements	2	4	1	0.5
PC9. ensure that the unwanted waste/debris is disposed as per industry practices	2	3	1	-
PC10. identify gaps and delays with respect to the deliverables and schedules	2	3	1	0.5
PC11. determine and record additional requirement of resources, materials and supplies at the work site	2	3	1	0.5
PC12. provide technical inputs/recommendations to the team wherever there is a problem	2	3	1	0.5



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. prepare a report to record the work progress	2	3	-	0.5
<i>Coordinate with stakeholders</i>	3	6	2	1
PC14. share the modifications/changes in the action plan or schedule with all personnel impacted by the same	2	3	1	0.5
PC15. follow organisational procedure to share the reports and important documents with the team and designated personnel	1	3	1	0.5
NOS Total	30	49	14	7



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National Occupational Standards (NOS) Parameters

NOS Code	PSC/N0144
NOS Name	Inspect the Plumbing Work to Ensure Compliances
Sector	Plumbing
Sub-Sector	Industrial / Non-Industrial Plumbing
Occupation	Plumbing Systems Installation and Maintenance
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2026
NSQC Clearance Date	24/02/2022



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PSC/N0145: Ensure Effective Repair and Maintenance of Plumbing Systems

Description

This unit deals in detail with proper repair and maintenance of the plumbing systems as per the specified standards.

Scope

The scope covers the following :

- Identify repair and maintenance requirements
- Ensure repair and maintenance as per task requirements
- Conduct final checks and handover

Elements and Performance Criteria

Identify repair and maintenance requirements

To be competent, the user/individual on the job must be able to:

- PC1.** conduct a visual check to identify the type of problem in the part/fixture/piping
- PC2.** conduct relevant checks to decide the type of repair or preventive maintenance to be performed for the given plumbing system
- PC3.** identify repair and maintenance requirements by referring to product manuals/catalogues
- PC4.** perform routine measurements to plan the required resources and accessories
- PC5.** inspect the work site to plan space allocation for plumbing installations, if any

Ensure repair and maintenance as per task requirements

To be competent, the user/individual on the job must be able to:

- PC6.** ensure that the required tools and materials are provided to the team
- PC7.** estimate the total cost of the project after conducting a thorough review
- PC8.** seek help from concerned personnel wherever required
- PC9.** allocate manpower for the plumbing project repair and maintenance activity
- PC10.** brief the concerned authority/designated personnel about the type of work to be carried out as per organisational procedure
- PC11.** provide suggestions to plumbers and clients for situations or problems that do not have a standard solution

Conduct final checks and handover

To be competent, the user/individual on the job must be able to:

- PC12.** check if the repaired systems are functioning
- PC13.** conduct relevant tests to ensure adequate pressure within the fittings, accessories, piping and pump systems
- PC14.** check for any active leaks such as water spots, moisture or puddles in the plumbing systems
- PC15.** ensure there are no signs of corrosion and rusting in the plumbing systems



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- PC16.** ensure there is no lime scale around fixtures such as shower heads and water faucets
- PC17.** brief the customers about proper use and upkeep of plumbing equipment after task completion and handover the maintenance manuals
- PC18.** maintain logbooks and records of the work done by following organisational procedures
- PC19.** ensure that the flammable and inflammable waste is segregated and disposed as per standard procedures

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** organisational policies on repair and maintenance of plumbing systems
- KU2.** organisational departments, hierarchy and process of workflow
- KU3.** reporting procedure followed within an organisation
- KU4.** documentation policy for the organisation
- KU5.** individual's role in the workflow
- KU6.** process for maintaining records such as logbooks in an organisation
- KU7.** standards applicable to the plumbing industry
- KU8.** visual checking of plumbing systems for the identification of repair and maintenance tasks
- KU9.** inspection procedure for installed plumbing systems
- KU10.** industry approved techniques for repair and maintenance of plumbing systems
- KU11.** project documents associated with the plumbing systems
- KU12.** tools and materials used in the plumbing tasks
- KU13.** basic measurements performed for plumbing systems
- KU14.** importance of repairing, replacing and discarding worn out or damaged parts and accessories
- KU15.** techniques to inspect the impact of local contextual factors on work plan and requirements, including time, costs and quality
- KU16.** process to check for any active leaks in the piping and plumbing fixtures
- KU17.** tests to be conducted for maintaining adequate flow of water
- KU18.** techniques to maintain the required pressure in the plumbing systems
- KU19.** procedure to check for airtight connections of plumbing fittings and accessories
- KU20.** about flammable and inflammable materials at the work site
- KU21.** treatment techniques for preventing rusting and corrosion of plumbing materials
- KU22.** disposal techniques for unwanted waste at the work site
- KU23.** harm (corrosion, rusting, wear and tear) caused to pipes by factors such as temperature, pH (acidity levels) and chemical composition, oxidation, ageing, etc. and other hazards at the workplace
- KU24.** precautions to be taken while working with hazardous substances
- KU25.** applications of personal protective equipment (PPE) required for plumbing work

Generic Skills (GS)



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User/individual on the job needs to know how to:

- GS1.** read and write brief notes in local language/Hindi/English
- GS2.** read and write common plumbing symbols
- GS3.** fill in relevant forms for material requisitioning, reporting, employment and other purposes
- GS4.** comprehend required quantities, names of materials, equipment and supplies and related forms and formats
- GS5.** provide verbal instructions and information about work related matters in local language or Hindi or English
- GS6.** state information, doubts and concerns about work related matters with clarity and in a professional manner
- GS7.** evaluate adequacy of information available for sound decision making
- GS8.** co-ordinate with a range of team members and activities
- GS9.** plan work activities and communicate to others whose work plans and timelines may be affected
- GS10.** identify the objectives, concerns and priorities of the client
- GS11.** identify array of solutions that addresses needs of the client
- GS12.** apply problem solving skills
- GS13.** seek official and authorised sources of help and guidance to resolve problems that cannot be solved at one's level of authority

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Identify repair and maintenance requirements</i>	11	12	4	2
PC1. conduct a visual check to identify the type of problem in the part/fixture/piping	3	3	1	0.5
PC2. conduct relevant checks to decide the type of repair or preventive maintenance to be performed for the given plumbing system	1	1	0.5	0.5
PC3. identify repair and maintenance requirements by referring to product manuals/catalogues	3	2	1	0.5
PC4. perform routine measurements to plan the required resources and accessories	2	3	1	0.5
PC5. inspect the work site to plan space allocation for plumbing installations, if any	2	3	0.5	-
<i>Ensure repair and maintenance as per task requirements</i>	9	15	4	2
PC6. ensure that the required tools and materials are provided to the team	2	3	1	0.5
PC7. estimate the total cost of the project after conducting a thorough review	1	3	1	0.5
PC8. seek help from concerned personnel wherever required	-	2	-	-
PC9. allocate manpower for the plumbing project repair and maintenance activity	2	3	1	0.5
PC10. brief the concerned authority/designated personnel about the type of work to be carried out as per organisational procedure	2	2	1	0.5
PC11. provide suggestions to plumbers and clients for situations or problems that do not have a standard solution	2	2	-	-
<i>Conduct final checks and handover</i>	10	22	6	3
PC12. check if the repaired systems are functioning	1	3	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. conduct relevant tests to ensure adequate pressure within the fittings, accessories, piping and pump systems	1	3	1	0.5
PC14. check for any active leaks such as water spots, moisture or puddles in the plumbing systems	2	3	1	0.5
PC15. ensure there are no signs of corrosion and rusting in the plumbing systems	2	3	1	-
PC16. ensure there is no lime scale around fixtures such as shower heads and water faucets	1	2	1	1
PC17. brief the customers about proper use and upkeep of plumbing equipment after task completion and handover the maintenance manuals	1	3	1	1
PC18. maintain logbooks and records of the work done by following organisational procedures	1	3	1	-
PC19. ensure that the flammable and inflammable waste is segregated and disposed as per standard procedures	1	2	-	-
NOS Total	30	49	14	7



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National Occupational Standards (NOS) Parameters

NOS Code	PSC/N0145
NOS Name	Ensure Effective Repair and Maintenance of Plumbing Systems
Sector	Plumbing
Sub-Sector	Industrial / Non-Industrial Plumbing
Occupation	Plumbing Systems Installation and Maintenance
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2026
NSQC Clearance Date	24/02/2022



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PSC/N0136: Apply Health and Safety Practices at the Workplace

Description

This unit is about following safety procedures, communicating potential hazards and dangers of accidents on the job.

Scope

The scope covers the following :

- Follow safety measures to avoid accidents
- Daily inspection of tools and equipment
- Deal with emergencies

Elements and Performance Criteria

Follow safety measures to avoid accidents

To be competent, the user/individual on the job must be able to:

- PC1.** identify risks and hazards at the workplace
- PC2.** wear personal protective equipment (PPE) as per the type of plumbing work
- PC3.** place protective barricades and signages around the pits and trenches
- PC4.** isolate the plumbing fittings and fixtures from electrical wiring to avoid accidents
- PC5.** adhere to organisational procedures for reporting hazards and incidents to relevant authorities
- PC6.** establish ventilation before entering underground work areas
- PC7.** work safely in and around trenches, elevated places and confined areas
- PC8.** ensure tools and hazardous materials are not left unattended
- PC9.** ensure good housekeeping in order to prevent hazards e.g. fire
- PC10.** dispose waste materials and used PPE according to regulations and codes of practice

Follow hygiene and sanitation practices

To be competent, the user/individual on the job must be able to:

- PC11.** follow recommended personal hygiene and sanitation practices, for example, washing/sanitizing hands, covering face with a bent elbow while coughing/sneezing etc.
- PC12.** clean and disinfect work area, materials/supplies, equipment etc. before and after use.
- PC13.** report hygiene and sanitation issues to appropriate authority

Use tools, equipment and materials safely

To be competent, the user/individual on the job must be able to:

- PC14.** check that the tools, equipment and materials are in good condition and as per industry standards before use
- PC15.** use power tools and machinery that are grounded
- PC16.** replace or repair split or loose tools before use
- PC17.** store and transport various plumbing materials safely



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Deal with emergencies

To be competent, the user/individual on the job must be able to:

- PC18.** follow workplace emergency and evacuation procedures
- PC19.** use a fire extinguisher correctly
- PC20.** use safe methods to free a person from electrocution
- PC21.** administer appropriate first aid (such as CPR etc.) to victims in case of cuts, bleeding, burns, choking, electric shock, poisoning etc.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** possible causes of risk, hazard or accident in the workplace
- KU2.** organisational procedures for upkeep of tools and plumbing materials, health and safety
- KU3.** location of all the general health and safety equipment in the workplace
- KU4.** meaning of hazards and risks
- KU5.** hazardous environment encountered during work such as underground areas, elevated areas, areas with water and electricity supply, presence of biological waste, under construction sites etc.
- KU6.** work practices and precautions to control and prevent risks, hazards and accidents
- KU7.** importance of each personal protective equipment used such as eye protection mask, hard hats, gloves, apron, rubber boots etc.
- KU8.** tools and plumbing equipment as per latest industry standards
- KU9.** preventative and remedial actions to be taken in case of exposure to toxic materials
- KU10.** specific safety and health related problems faced in domestic, commercial and institutional setups
- KU11.** various causes of fire and precautionary activities to prevent the fire accident
- KU12.** techniques of using the different fire extinguishers
- KU13.** rescue techniques applied during a fire hazard
- KU14.** various types of safety signs and meaning
- KU15.** appropriate basic first aid treatment relevant to the condition e.g. shock, electrical shock, bleeding, minor burns, poisoning, eye injuries etc.
- KU16.** potential injuries and ill health associated with incorrect handling of tools and equipment

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** write an accident/incident report in local language or English
- GS2.** read and comprehend labels, charts, signages, manuals, plumbing symbols etc.
- GS3.** question coworkers appropriately in order to clarify instructions and other issues
- GS4.** plan and organize the work schedule, work area, tools, equipment and materials for improved productivity



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- GS5.** determine key considerations and priorities when faced with problems
- GS6.** seek official and authorised sources of help and guidance to resolve problems that cannot be solved at one's level of authority



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Follow safety measures to avoid accidents</i>	13	32	-	3
PC1. identify risks and hazards at the workplace	2	2	-	0.5
PC2. wear personal protective equipment (PPE) as per the type of plumbing work	2	2	-	0.5
PC3. place protective barricades and signages around the pits and trenches	1	4	-	0.5
PC4. isolate the plumbing fittings and fixtures from electrical wiring to avoid accidents	1	4	-	-
PC5. adhere to organisational procedures for reporting hazards and incidents to relevant authorities	2	4	-	0.5
PC6. establish ventilation before entering underground work areas	1	4	-	-
PC7. work safely in and around trenches, elevated places and confined areas	1	3	-	-
PC8. ensure tools and hazardous materials are not left unattended	1	3	-	-
PC9. ensure good housekeeping in order to prevent hazards e.g. fire	1	3	-	0.5
PC10. dispose waste materials and used PPE according to regulations and codes of practice	1	3	-	0.5
<i>Follow hygiene and sanitation practices</i>	3	8	-	1
PC11. follow recommended personal hygiene and sanitation practices, for example, washing/sanitizing hands, covering face with a bent elbow while coughing/sneezing etc.	1	3	-	0.5
PC12. clean and disinfect work area, materials/supplies, equipment etc. before and after use.	1	3	-	0.5
PC13. report hygiene and sanitation issues to appropriate authority	1	2	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Use tools, equipment and materials safely</i>	6	9	-	1
PC14. check that the tools, equipment and materials are in good condition and as per industry standards before use	1	3	-	0.25
PC15. use power tools and machinery that are grounded	1	2	-	0.25
PC16. replace or repair split or loose tools before use	2	2	-	0.25
PC17. store and transport various plumbing materials safely	2	2	-	0.25
<i>Deal with emergencies</i>	8	14	-	2
PC18. follow workplace emergency and evacuation procedures	2	3	-	0.5
PC19. use a fire extinguisher correctly	2	4	-	0.5
PC20. use safe methods to free a person from electrocution	2	3	-	0.5
PC21. administer appropriate first aid (such as CPR etc.) to victims in case of cuts, bleeding, burns, choking, electric shock, poisoning etc.	2	4	-	0.5
NOS Total	30	63	-	7



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Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	PSC/N0136
NOS Name	Apply Health and Safety Practices at the Workplace
Sector	Plumbing
Sub-Sector	Industrial / Non-Industrial Plumbing, Water Supply & Water Treatment & Quality Control, Sewerage & Sewage Treatment, Drainage, Water Harvesting & Ground Recharging, Firefighting & Safety Systems, Gas & Piping (Industrial / Medical), HVAC & Steam, Manufacturing of Plumbing / Firefighting Products, Micro-Hydel Power
Occupation	Plumbing Systems Installation and Maintenance, Designing, Sales, Material Handling, Plumbing Servicing, Plumbing Plant Operations
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2026
NSQC Clearance Date	24/02/2022



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Qualification Pack

PSC/N0138: Implement Measures to Work Effectively

Description

This unit covers basic etiquette and competencies that a candidate requires to implement measures for effective team working and communication at the workplace.

Scope

The scope covers the following :

- Ensure team preparedness for the tasks
- Monitor completion of work as per expected standards
- Handle queries, concerns and welfare of workers
- Respect diversity

Elements and Performance Criteria

Ensure team preparedness for the tasks

To be competent, the user/individual on the job must be able to:

- PC1.** create a work plan and schedule for the workers as per work priorities, availability of manpower, equipment and weather conditions
- PC2.** assign work taking full account of each team member's abilities
- PC3.** train the workers

Monitor completion of work as per expected standards

To be competent, the user/individual on the job must be able to:

- PC4.** monitor project activities to ensure adherence to work instructions, schedules, budgets and targets
- PC5.** identify causes for any lag in performance as well as possible solutions to bridge the gap
- PC6.** provide feedback on individual work performance to each team member for improvement in work quality
- PC7.** implement measures to improve team effectiveness e.g. adhering to timelines, taking scheduled breaks, proactiveness, minimum interruptions etc.
- PC8.** ensure accurate and effective delivery of written communication (reports, updates etc.) to stakeholders within agreed timelines

Handle queries, concerns and welfare of workers

To be competent, the user/individual on the job must be able to:

- PC9.** investigate work-related complaints to verify problems and record responses relevant to the project
- PC10.** perform administrative duties, such as authorising leaves, processing time sheets as per standard operating procedure (SOP)
- PC11.** review contracts or work assignments to determine service, machine, or workforce requirements for jobs
- PC12.** deal with conflicts among the team members in a professional manner
- PC13.** prepare and maintain required records, such as work activity or personnel reports



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Respect diversity

To be competent, the user/individual on the job must be able to:

- PC14.** use respectful verbal, non-verbal and written communication that is gender, disability, age and culturally sensitive
- PC15.** transact with all people without any personal bias based on gender, disability, caste, religion, colour, sexual orientation or culture and in accordance with their legal rights
- PC16.** recognize indicators of harassment and discrimination based on gender, disability, caste, religion, colour, sexual orientation or culture at workplace and follow organisational policy for reporting the same.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** legislation, standards, policies, and procedures followed in the company relevant to employment, behaviour and performance conditions
- KU2.** reporting structure, inter-dependent functions, lines and procedures in the work area
- KU3.** relevant people and their responsibilities within the work area
- KU4.** escalation matrix and procedures for reporting work and employment related issues
- KU5.** sexual harassment of women at workplace (Prevention, Prohibition and Redressal) Act, 2013
- KU6.** organizational policy for harassment and discrimination based on gender, disability, caste, religion, colour, sexual orientation or culture
- KU7.** internal and external stakeholders at the workplace and their communication requirements
- KU8.** importance of effective communication in the workplace and the impact of poor communication on the employee, the employer and the customer
- KU9.** various components of effective communication such as tone and pitch
- KU10.** advantages and disadvantages of various modes of communication
- KU11.** importance of teamwork in organizational and individual success
- KU12.** goal setting
- KU13.** group dynamics and processes
- KU14.** measures to improve workplace productivity
- KU15.** importance of ethics and discipline for professional success
- KU16.** common reasons for interpersonal conflict
- KU17.** importance of developing effective working relationships for professional success
- KU18.** how to deal with grievances and problems appropriately and effectively
- KU19.** importance and ways of managing interpersonal conflict effectively
- KU20.** laws, acts and provisions defined for PwD by the statutory bodies
- KU21.** government and private schemes and benefits available for PwD
- KU22.** basic gender concepts such as gender power relations, gender roles, access and control, gender sensitivity, gender equity and equality
- KU23.** gender, disability, cultural and age related biases, stereotyping and its impact
- KU24.** actions and consequences of gendered behavior



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- KU25.** types of harassment and discrimination based on gender, disability, caste, religion or culture that occurs at a typical workplace and how to recognize it
- KU26.** types of unacceptable behavior

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** write clear and legible notes, instructions and maintain records in local language or English
- GS2.** comprehend quantities and basic work-related terminology for operational requirements
- GS3.** interpret information accurately from work-related documents, work instructions and records
- GS4.** communicate appropriately (correct protocol and manner of speaking) to understand about the type of output required and answer queries
- GS5.** display active listening skills while interacting with co-workers and others in the workplace
- GS6.** plan tasks to maintain a smooth relationship with fellow team members
- GS7.** plan the steps within one's limits of authority as per required modification
- GS8.** perform activities accurately and effectively in order to meet customer requirements
- GS9.** work with co-workers and supervisor to resolve any issues that threaten work quality as per the planned schedule

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure team preparedness for the tasks</i>	6	11	2	2
PC1. create a work plan and schedule for the workers as per work priorities, availability of manpower, equipment and weather conditions	2	4	1	0.5
PC2. assign work taking full account of each team member's abilities	2	4	1	0.5
PC3. train the workers	2	3	-	1
<i>Monitor completion of work as per expected standards</i>	10	15	4	3
PC4. monitor project activities to ensure adherence to work instructions, schedules, budgets and targets	2	3	1	0.5
PC5. identify causes for any lag in performance as well as possible solutions to bridge the gap	2	3	1	0.5
PC6. provide feedback on individual work performance to each team member for improvement in work quality	2	3	0.5	0.5
PC7. implement measures to improve team effectiveness e.g. adhering to timelines, taking scheduled breaks, proactiveness, minimum interruptions etc.	2	3	0.5	0.5
PC8. ensure accurate and effective delivery of written communication (reports, updates etc.) to stakeholders within agreed timelines	2	3	1	1
<i>Handle queries, concerns and welfare of workers</i>	7	14	5	1
PC9. investigate work-related complaints to verify problems and record responses relevant to the project	1	3	1	-
PC10. perform administrative duties, such as authorising leaves, processing time sheets as per standard operating procedure (SOP)	2	3	1	0.5



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. review contracts or work assignments to determine service, machine, or workforce requirements for jobs	2	3	1	-
PC12. deal with conflicts among the team members in a professional manner	1	3	1	0.5
PC13. prepare and maintain required records, such as work activity or personnel reports	1	2	1	-
<i>Respect diversity</i>	7	9	3	1
PC14. use respectful verbal, non-verbal and written communication that is gender, disability, age and culturally sensitive	3	3	1	-
PC15. transact with all people without any personal bias based on gender, disability, caste, religion, colour, sexual orientation or culture and in accordance with their legal rights	2	3	1	0.5
PC16. recognize indicators of harassment and discrimination based on gender, disability, caste, religion, colour, sexual orientation or culture at workplace and follow organisational policy for reporting the same.	2	3	1	0.5
NOS Total	30	49	14	7



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National Occupational Standards (NOS) Parameters

NOS Code	PSC/N0138
NOS Name	Implement Measures to Work Effectively
Sector	Plumbing
Sub-Sector	Industrial / Non-Industrial Plumbing, Water Supply & Water Treatment & Quality Control, Sewerage & Sewage Treatment, Drainage, Water Harvesting & Ground Recharging, Firefighting & Safety Systems, Gas & Piping (Industrial / Medical), HVAC & Steam, Manufacturing of Plumbing / Firefighting Products, Micro-Hydel Power
Occupation	Plumbing Systems Installation and Maintenance, Designing, Sales, Material Handling, Plumbing Servicing
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2026
NSQC Clearance Date	24/02/2022



SGJ/N1702: Optimize resource utilization at workplace

Description

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

Scope

The scope covers the following :

- Material conservation practices
- Energy/electricity conservation practices
- Effective waste management/recycling practices

Elements and Performance Criteria

Material conservation practices

To be competent, the user/individual on the job must be able to:

- PC1.** identify ways to optimize usage of material including water in various tasks/activities/processes
- PC2.** check for spills/leakages in various tasks/activities/processes
- PC3.** plug spills/leakages and escalate to appropriate authority if unable to rectify
- PC4.** carry out routine cleaning of tools, machines and equipment

Energy/electricity conservation practices

To be competent, the user/individual on the job must be able to:

- PC5.** identify ways to optimize usage of electricity/energy in various tasks/activities/processes
- PC6.** check if the equipment/machine is functioning normally before commencing work and rectify wherever required
- PC7.** report malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment
- PC8.** ensure electrical equipment and appliances are properly connected and turned off when not in use

Effective waste management/recycling practices

To be competent, the user/individual on the job must be able to:

- PC9.** identify recyclable and non-recyclable, and hazardous waste generated
- PC10.** segregate waste into different categories
- PC11.** dispose non-recyclable waste appropriately
- PC12.** deposit recyclable and reusable material at identified location
- PC13.** follow processes specified for disposal of hazardous waste

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:



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- KU1.** potential hazards, risks and threats based on the nature of work
- KU2.** layout of the workstation and electrical and thermal equipment used
- KU3.** organizations procedures for minimizing waste
- KU4.** efficient and inefficient utilization of material and water
- KU5.** ways of efficiently managing material and water in the process
- KU6.** basics of electricity and prevalent energy efficient devices
- KU7.** ways to recognize common electrical problems
- KU8.** common practices of conserving electricity
- KU9.** usage of different colours of dustbins
- KU10.** categorization of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics
- KU11.** waste management and methods of waste disposal
- KU12.** common sources of pollution and ways to minimize it

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** record data on waste disposal at workplace
- GS2.** complete statutory documents relevant to safety and hygiene
- GS3.** read Standard Operating Practices (SOP) documents
- GS4.** communicate with colleagues on the significance of greening of jobs
- GS5.** make timely decisions for efficient utilization of resources
- GS6.** complete tasks efficiently and accurately within stipulated time
- GS7.** work with supervisors/team members to carry out work related tasks
- GS8.** identify cause and effect of greening of jobs



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Material conservation practices</i>	4	8	-	-
PC1. identify ways to optimize usage of material including water in various tasks/activities/processes	1	2	-	-
PC2. check for spills/leakages in various tasks/activities/processes	1	2	-	-
PC3. plug spills/leakages and escalate to appropriate authority if unable to rectify	1	2	-	-
PC4. carry out routine cleaning of tools, machines and equipment	1	2	-	-
<i>Energy/electricity conservation practices</i>	4	8	-	-
PC5. identify ways to optimize usage of electricity/energy in various tasks/activities/processes	1	2	-	-
PC6. check if the equipment/machine is functioning normally before commencing work and rectify wherever required	1	2	-	-
PC7. report malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment	1	2	-	-
PC8. ensure electrical equipment and appliances are properly connected and turned off when not in use	1	2	-	-
<i>Effective waste management/recycling practices</i>	5	10	-	-
PC9. identify recyclable and non-recyclable, and hazardous waste generated	1	2	-	-
PC10. segregate waste into different categories	1	2	-	-
PC11. dispose non-recyclable waste appropriately	1	2	-	-
PC12. deposit recyclable and reusable material at identified location	1	2	-	-
PC13. follow processes specified for disposal of hazardous waste	1	2	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	13	26	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	SGJ/N1702
NOS Name	Optimize resource utilization at workplace
Sector	Green Jobs
Sub-Sector	Other Green Jobs
Occupation	Resource Optimization
NSQF Level	3
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2025
NSQC Clearance Date	24/02/2022

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each Element/ PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.



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Minimum Aggregate Passing % at QP Level : 70

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
PSC/N0143.Prepare for a Plumbing Assignment	25	39	12	6	82	25
PSC/N0144.Inspect the plumbing work to ensure compliances	30	49	14	7	100	25
PSC/N0145.Ensure Effective Repair and Maintenance of Plumbing Systems	30	49	14	7	100	25
PSC/N0136.Apply health and safety practices at the workplace.	30	63	-	7	100	10
PSC/N0138.Implement Measures to Work Effectively	30	49	14	7	100	10
SGJ/N1702.Optimize resource utilization at workplace	13	26	-	-	39	5
Total	158	275	54	34	521	100



Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training



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Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.



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Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.