QUALIFICATION FILE

Water Pump Operator

☒ Short Term Training (STT) ☐ Long Term Training (LTT) ☐ Apprenticeship

☒ Upskilling ☐ Dual/Flexi Qualification ☒ For ToT ☒ For ToA

☒General ☐ Multi-skill (MS) ☐ Cross Sectoral (CS) ☐ Future Skills ☐ OEM

NCrF/NSQF Level: 4

Submitted By:

Water Management and Plumbing Skill Council

Address: 606 & 609, Tower-C, DLF Prime Towers, Phase I, Okhla, New Delhi, 110020, Tel: 011 – 4151 3580

Table of Contents

Section 1: Basic Details

1.	**Qualification Name**	**Water Pump Operator**	
2.	**Sector/s**	**Water Management and Plumbing**	
3.	**Type of Qualification:** ☐ **New** ☒ **Revised** ☐ **Has Electives/Options** ☐**OEM**	**NQR Code & version of existing/previous qualification:** 2022/PLUM/WMPS/05465	**Qualification Name of existing/previous version: Water Pump Operator**
4.	**a. OEM Name** **b. Qualification Name** (*Wherever applicable)*		
5.	**National Qualification Register (NQR) Code &Version** (*Will be issued after NSQC approval)*	QG-04-PL-03705-2025-V2-WMPS Version 3.0	**6. NCrF/NSQF Level:** *4*
7.	**Award (Certificate/Diploma/Advance Diploma/ Any Other** *(Wherever applicable specify multiple entry/exits also & provide details in annexure)*	Certificate	
8.	**Brief Description of the Qualification**	The Water Pump Operator is responsible for the installation, operation and maintenance of pumps. The individual will also operate and maintain the water supply, water distribution and waste water treatment systems.	

9. Eligibility Criteria for Entry for Student/Trainee/Learner/Employee

a. Entry Qualification & Relevant Experience:

S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)
1.	12th Grade Pass	
2.	10th Grade Pass with two years of any combination of NTC/NAC/CITS or equivalent	
3.	10th Grade Pass	3 years of experience

b. Age: 18 Years

10. Credits Assigned to this Qualification, Subject to Assessment *(as per National Credit Framework (NCrF))*: 15

11. Common Cost Norm Category (I/II/III) *(wherever applicable)*: I

12. Any Licensing requirements for Undertaking Training on This Qualification *(wherever applicable)*: NA

13. Training Duration by Modes of Training Delivery *(Specify **Total Duration** as per selected training delivery modes and as per requirement of the qualification)*

☒**Offline** ☐**Online** ☐**Blended**

Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)
Classroom (offline)	120	240	90	-	450
Online	-	-	-	-	-

(Refer Blended Learning Annexure for details)

14. Aligned to NCO/ISCO Code/s *(if no code is available mention the same)*: NCO-2015/7126.0101

15. Progression path after attaining the qualification *(Please show Professional and Academic progression)*

Water Pump Operator (L4) → Motor Mechanic (L5)

16.	**Other Indian languages in which the Qualification & Model Curriculum are being submitted**	**Hindi**	
17.	**Is similar Qualification(s) available on NQR-if yes, justification for this qualification**	**☐ Yes ☒ No URLs of similar Qualifications:**	
18.	**Is the Job Role Amenable to Persons with Disability**	**☒ Yes ☐ No** **If "Yes", specify applicable type of Disability:** Deaf, Hard of Hearing, Speech and Language disability	
19.	**How Participation of Women will be Encouraged**	**Encouraging the participation of women in the role of Water Pump Operator is essential for promoting diversity and inclusion in the workplace. Traditionally considered male-dominated, this sector has increasingly recognized the valuable contributions that women can bring to the operations of Water Pump. Here are some strategies to encourage women's participation in this field:** **Awareness and Career Counselling Campaigns:** Conduct awareness and career counselling campaigns in society, colleges, institutes and schools and colleges to highlight the importance of the Water Pump operator role and the opportunities it offers. **Role Models:** Highlight success stories of women water pump operator to inspire and motivate others. **Partnerships with NGOs:** Partner with NGOs and other organizations working on gender equality to create programs that support women entering the field. **Advocacy and Awareness:** Advocating for gender equality and diversity in the workplace through campaigns and awareness programs. Implementing these strategies can help create an inclusive and supportive environment that encourages women to pursue and succeed in water pump operator roles.	
20.	**Are Greening/ Environment Sustainability Aspects Covered** *(Specify the NOS/Module which covers it)*	**☒ Yes ☐ No** **(Covered in DGT/VSQ/N0102)**	
21.	**Is Qualification Suitable to be Offered in Schools/Colleges**	**Schools ☐ Yes ☒ No Colleges ☒ Yes ☐ No**	
22.	**Name and Contact Details of Submitting / Awarding Body SPOC** *(In case of CS or MS, provide details of both Lea`d AB & Supporting ABs)*	**Name: Himanshu Singh** **Email: standards@wmpsc.in** **Contact No.: +917906577202** **Website: www.wmpsc.in**	
23.	**Final Approval Date by NSQC:** *18-02-2025*	**24. Validity Duration: 3 years**	**25. Next Review Date:** *18-02-2028*

Section 2: Module Summary

NOS/s of Qualifications

(In exceptional cases these could be described as components)

Mandatory NOS/s:

Specify the training duration and assessment criteria at NOS/ Module level. For further details refer curriculum document.

***Th.**-Theory **Pr.**-Practical **OJT**-On the Job Training **Man.**-Mandatory **Rec.**-Recommended **Proj.**-Project*

S. No	NOS/Module Name	NOS/Module Code & Version *(if applicable)*	Core/ Non-Core	NCrF/NS QF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) *(if applicable)*
1.	Install pump systems and related equipment	PSC/N0151	Core	4	3	20	50	20		90	15	30	-	5	50	15
2.	Operate and Maintain Pumps and Related Machinery	PSC/N0152	Core	4	3	20	45	25		90	15	30	-	5	50	20
3.	Perform maintenance of local ground water source and water quality monitoring at water supply stations	PSC/N0153	Core	4	3	20	50	20		90	15	30	-	5	50	20
4.	Maintain of water distribution and storage systems at water supply stations	PSC/N0154	Core	4	2	15	30	15		60	15	30	-	5	50	20
5.	Operate and maintain water treatment units	PSC/N0155	Core	4	1.5	10	25	10		45	15	30	-	5	50	15
6.	Apply Health and Safety at Workplace	PSC/N0136, v3.0	Non-Core	4	0.5	5	10			15	30	60	-	10	30	5
7.	Employability Skills (60 Hours)	DGT/VSQ/N0102, v1.0	Non-Core	4	2	30	30			60	20	30	-	-	50	5
Duration (in Hours) / Total Marks					**15**	**120**	**240**	**90**	**-**	**450**	**125**	**240**	**-**	**35**	**400**	**100**

Assessment - Minimum Qualifying Percentage

*Please specify **any one** of the following:*

Minimum Pass Percentage – Aggregate at qualification level: 70 % *(Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)*

Minimum Pass Percentage – NOS/Module-wise: 70% *(Every Trainee should score specified minimum passing percentage in each mandatory and selected elective NOS/Module to successfully clear the assessment.)*

Section 3: Training Related

1.	**Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	B.E. / B. Tech in Civil/Mechanical/Environmental Engineering with 3 years of experience in Plumbing or Water Management/Public Health Department experience OR Diploma in Civil or Mechanical Engineering with 4 years of experience in Plumbing or Water Management/Public Health Department experience/Plumbing OR CITS Certified Trainer in Plumbing
2.	**Master Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	M. Tech in Civil/Mechanical/Environmental Engineering with 2 years of relevant experience OR B.E. / B. Tech in Civil /Mechanical/Environmental Engineering with 4 years of relevant experience OR Diploma in Civil or Mechanical Engineering with 5 years of relevant experience
3.	**Tools and Equipment Required for Training**	☒Yes ☐No (*If "Yes", details provided in Annexure 2)*
4.	**In Case of Revised Qualification, Details of Any Upskilling Required for Trainer**	They have to undergo fresh Training of Trainers

Section 4: Assessment Related

1.	**Assessor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	B.E. / B. Tech in Civil/Mechanical/Environmental Engineering with 3 years of experience in Plumbing or Water Management/Public Health Department experience OR Diploma in Civil or Mechanical Engineering with 4 years of experience in Plumbing or Water Management/Public Health Department experience/Plumbing

2.	**Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	Diploma in Civil or Mechanical Engineering with 2 years of relevant experience OR Graduation in Environmental Science/ Water Management with 1 Year of Relevant Experience
3.	**Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	M. Tech in Civil or Mechanical or Environmental Engineering with 3 years of relevant experience OR Diploma in Civil or Mechanical Engineering with 5 years of relevant experience
4.	**Assessment Mode** *(Specify the assessment mode)*	Both Digitized and Non-digitized Mode
5.	**Tools and Equipment Required for Assessment**	☒ Same as for training ☐ Yes ☐ No *(details to be provided in Annexure-if it is different for Assessment)*

Section 5: Evidence of the need for the Qualification

Provide Annexure/Supporting documents name.

1.	**Latest Skill Gap Study (not older than 2 years) (Yes/No):** No
2.	**Latest Market Research Reports or any other source (not older than 2 years) (Yes/No):** Yes
3.	**Government /Industry initiatives/ requirement (Yes/No):** Yes
4.	**Number of Industry validation provided:** 22
5.	**Estimated nos. of persons to be trained and employed:** 15,000
6.	**Evidence of Concurrence/Consultation with Line Ministry/State Departments:** *Yes* If "No", why:

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	**Annexure:** NCrF/NSQF level justification based on NCrF level/NSQF descriptors *(Mandatory)*	*Annexure-1*
2.	**Annexure:** List of tools and equipment relevant for qualification *(Mandatory, except in case of online course)*	*Annexure-2*
3.	**Annexure:** Detailed Assessment Criteria *(Mandatory)*	*Annexure-5*
4.	**Annexure:** Assessment Strategy *(Mandatory)*	*Annexure-6*

5.	**Annexure:** Blended Learning *(Mandatory, in case selected Mode of delivery is "Blended Learning")*	*NA*
6.	**Annexure:** Multiple Entry-Exit Details *(Mandatory, in case qualification has multiple Entry-Exit)*	*NA*
7.	**Annexure:** Acronym and Glossary *(Optional)*	*Annexure-7*
8.	**Supporting Document:** Model Curriculum *(Mandatory – Public view)*	*Attached*
9.	**Supporting Document:** Career Progression *(Mandatory - Public view)*	*Attached*
10.	**Supporting Document:** Occupational Map *(Mandatory)*	*Attached*
11.	**Supporting Document:** Assessment SOP *(Mandatory)*	*Attached*
12.	**Any other document you wish to submit:**	*No*

Annexure 1: Evidence of Level

NCrF/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrF/NSQF level descriptor	NCrF/NSQF Level
Professional Theoretical Knowledge/Process	• Understand the standards relevant to the plumbing industry • Importance of accuracy in measurements and calculations • Mathematical formulas needed to calculate area, length, perimeter, diameter, circumference, volume, mass, force, pressure, scales, ratios etc. • Overview of global, national and regional water crises scenario • Understand the need for conservation of water quantity and quality and ensuring sustainability of the structure • Role of community and organizations in water conservation • Understand water conservation plans for villages and introduction to water budgeting • Knowledge of various natural sources of water • procedures and precautions for conservation of rainwater in water conservation structures • Knowledge of various water conservation structures and their application such as contour trenches, ponds, watersheds, water basins, stop dams, etc. • Knowledge and understanding the use of materials, tools, equipment and labors required for construction of water conservation structures for village dwelling, farms, soak pits, kitchen garden and small communities	A Jal Mitra requires well developed skill to independently estimate, design, construct and maintain structures for water conservation and grey water management. They have to select type of structure, materials and tools required and also identify type of fault and perform repairs accordingly. Hence have clear choice of procedures in familiar context. Hence the Level is 4	4

	• Construction, operation and maintenance procedures for water conservation structures • Measures to avoid air and water contamination, erosion and sedimentation while collecting and storing water in water conservation structures • Understand the health and safety measures to be taken during construction and maintenance of water conservation structures • Understand the various grey water sources in households • Calculation for grey water estimation process • Understand the benefits of grey water management at household and community level • Role of community and organizations in grey water management • Village action plan for grey water management • Technological options for grey water management at household and community level such as soak pit, kitchen garden, filtration chambers, etc. • Understand the construction and maintenance of community soak pit (Reference- Swachh Bharat Mission guidelines) • Measures to avoid air and water contamination, erosion and sedimentation during construction and maintenance of soak pit and kitchen garden • Health and safety measures to be taken during construction and maintenance of soak pit and kitchen garden • Explain the need and importance of water quality. • Describe drinking water quality requirements as per IS 10500. • Explain the water sample collection method, frequency, schedule, source, etc., • Explain the physical, chemical and biological water quality parameter. • Explain the significance of different color coding in the Field-testing kit (FTK). • Describe the probable reason for water contamination (biological, physical and chemical) • Outline the different methods of disinfection like chlorination, ozonation, UV • Describe the health impacts due to consumption of contaminated water.		

	• Describe the possible damage that can occur in supply system due to poor water quality and vice-versa. • Understand the importance of disinfection of water. • Understand the sanitary survey and its impact on drinking water (location of toilets, soak pits, mixing of drain water in drinking water) • Understand turbidity, temperature, and color to assess water's visual and thermal quality. • Knowledge of pH, dissolved oxygen, nitrates, and heavy metals affecting water usability. • Knowledge of pH, dissolved oxygen, nitrates, and heavy metals affecting water usability. • Familiarity with proper water sample collection, storage, and transport to prevent contamination. • knowledge of laboratory and field-testing procedures for accurate water quality analysis. • various types of sensors and their application • types and applications of IoT based equipment used in remote water monitoring and management • components of IoT based Piped Water Monitoring System including pump controller, smart stand post and remote monitoring dashboard • information available from the dashboards of remote water monitoring systems • importance of maintenance of IoT based remote water monitoring systems • basic troubleshooting of faults that could occur in an IoT based remote water monitoring system • heath, safety and security guidelines to be adhered to while dealing with IoT based remote water monitoring systems • Understand key metrics like pH, turbidity, conductivity, and dissolved oxygen. • Knowledge of pipelines, storage tanks, and water flow dynamics. • Understand sensors, actuators, and their integration in monitoring systems. • Learn supervisory control, data acquisition systems, and communication protocols. • Familiarity with technologies like Wi-Fi, LoRa, and Zigbee for IoT applications.		

	• Knowledge of selecting and installing sensors for accurate water data collection. • Understanding cloud storage, local databases, and data transmission protocols. • Designing scalable and efficient IoT and SCADA-based water monitoring systems. • Skills to access and analyze real-time data remotely using IoT dashboards. • Techniques for integrating new IoT/SCADA systems with existing water infrastructure. • Ability to interpret water usage, quality trends, and sensor performance metrics. • Proficiency in software like Power BI, Grafana, or custom dashboards. • Understanding predictive analytics for fault detection and water demand forecasting. • Configuration of thresholds to trigger real-time alerts for anomalies. • Monitoring and optimizing energy consumption in water systems. • Using data insights for predictive maintenance of equipment. • Identifying pipeline leaks and inefficiencies using IoT devices. • Ensuring devices from different manufacturers work seamlessly within the system. • Identifying and fixing hardware/software issues in IoT and SCADA systems. • Implementing redundancies for uninterrupted water monitoring and management. • Measuring water resource impact and improving sustainability. • Interpreting system data for actionable insights to assist decision-makers. • various water conservation and efficient water usage solutions and schemes • data and information required for planning various water conservation and efficient water usage solutions and schemes and how to obtain that data • importance of data verification and data triangulation • basic water quality mapping and water budgeting concepts and practices		

	• role of community and importance of mobilizing community members for successful implementation of water conservation and efficient water usage practices and schemes • stakeholders involved in selection and implementation of water conservation and efficient water usage solutions and schemes • how to conduct PRAs, structure and roles and responsibilities of VWSCs and other rural committees • social and behavioral change required at the community level • various types of campaigns and campaign activities • key messages for awareness building of community members and other stakeholders • cleaning and maintenance of water conservation structures • importance of planning and time management • how to plan for efficient delivery of projects • tools for effective planning • estimation and costing of materials and labor • importance of maintaining quality, continuity and cost effectiveness • importance of maintaining records of materials consumed and inventory • basic accounting principles for micro enterprise KU8. calculation of margins and cash-flow		
Professional and Technical Skills/ Expertise/ Professional Knowledge	• identify site for construction of water harvesting structure • Perform designing of the structures designed as per standard specifications. • estimate and source materials, tools and labors required for construction of water harvesting structure • estimate the rainwater harvesting potential based on annual rainfall for a catchment area including a rooftop, farm or small community • select a simple water conservation structure suitable for a village dwelling, farm or small community based on type of terrain, area and amount of water harvested • perform construction of water harvesting structures by means of bricklaying, preparation of mortar and concrete and performing other masonry works • Calculate Proper dimensions for optimal groundwater recharge such as diameter and depth of soak pits. • estimate average grey water generation for a household per	They must have knowledge of facts, principles, processes and general concepts, in their field of work. Hence the Level is 4	4

	day • estimate size of soak pit required to treat the grey water generated • estimate and source materials and tools required for construction of soak-pit and kitchen garden • construct soak pit for treatment of the grey water and ground water re-charge • construct a kitchen garden for the re-use of grey water • Provide efficient diversion of excess water to soak pits. • Perform testing of soil health to ensures fertility and sustainability of soil. • Perform Integration of water-saving irrigation techniques. • Perform selection of plant which are drought-resistant and high-yield varieties • perform regular cleaning and maintenance of the water harvesting structures • repair faulty water harvesting structure • lay bricks, mortar, concrete for construction of water conservation structures • inspect the constructed soak pit and kitchen garden for faults • Ensure repaired structures are stable and durable. • Ensure No water seepage or leaks from conservation structures. • Maintain proper flow without obstructions in soak pits and channels. • Perform regular removal of silt to avoid clogging and reduced capacity. • Perform trimming or remove unwanted plants around structures. • Ensure proper replacement of filter material or clean sand, gravel in soak pits. • Perform usage of bunds or vegetation to prevent soil erosion. • Perform maintain safe access points for inspection and repair. • Ensure cleaning of waste or debris regularly to prevent blockages. • Ensure alignment of channels and outlets post-repair. • Maintain smooth and efficient drainage to prevent waterlogging. • Prevent seepage outside intended recharge zones.		

	• Ensure kitchen gardens have adequate water and are free from disease. • Conduct scheduled inspections to identify maintenance needs. • Identify different water sampling process from the source of water as per guidelines. • Collect water samples from the different drinking water source. • Test water quality using a field test kit for physical, chemical and biological parameters. • Preserve and dispatch samples to approved laboratory for testing. • Analyze and interpret test report from water quality report. • Match physical, chemical, and biological water quality parameters to drinking water source. • Determine and apply the correct dosage of disinfectants such as chlorine ensuring effective elimination of pathogens without harmful residuals. • Safely handle and store disinfectants, understanding the potential hazards and required precautions to prevent accidents and ensure their effectiveness. • Perform regular maintenance and calibration of disinfection equipment to ensure consistent and reliable operation, following manufacturer guidelines. • Measure and manage residual disinfectant levels in the treated water to ensure they are within safe limits for human consumption and comply with regulatory standards. • Accurately document the disinfection process. • Regularly measure and maintain water pH within acceptable limits for intended use. • Ensure adequate DO levels to support aquatic life and ecological balance. • Monitor water clarity to detect suspended particles and potential contamination sources. • Check for nitrate and phosphate concentrations to prevent eutrophication. • Test for pathogens like E. coli to ensure water is safe for consumption. • Monitor for harmful metals like lead, arsenic, and mercury exceeding safe thresholds.		

	• Assess water for salinity and hardness to prevent soil or equipment damage • Detect pesticides, fertilizers, and industrial pollutants to ensure environmental and health safety. • Perform Installation of IoT sensors for monitoring water quality, quantity, and flow rates. • Ensure seamless integration of IoT devices with central data platforms. • Perform regular calibration of sensors for accuracy in data collection. • Enable continuous, real-time monitoring of water parameters. • Configure IoT devices to meet specific project requirements. • Ensure reliable transmission of data using appropriate communication protocols (e.g., Wi-Fi, LoRa, or GSM). • Integrate IoT systems with cloud platforms for centralized data storage. • Develop dashboards to visualize water data in user-friendly formats. Set up and test automated alerts for parameter breaches. • Use AI/ML tools to predict trends and potential issues based on collected data. • Monitor for anomalies in flow data to detect leaks promptly. • Optimize IoT device energy usage for prolonged operation. • Ensure compatibility between IoT devices and existing water management systems. • Configure secure access for stakeholders to IoT platforms. • Use IoT data to plan predictive and preventive maintenance schedules. • Generate automated compliance reports based on monitored data. Enable remote monitoring and control of IoT water management systems. • Identify and resolve faults in IoT devices or data transmission systems. • Implement encryption and secure protocols to protect data integrity. • Track water usage efficiency to support sustainable water management goals. • Accurately configure and calibrate SCADA systems to monitor water parameters like flow rate, pressure, and quality.		

	• Monitor, interpret, and respond to real-time data trends and anomalies to ensure efficient water management • Promptly address system alarms, diagnose issues, and implement corrective actions to maintain operational stability. • Create comprehensive reports on water usage, quality, and system performance for decision-making and compliance purposes. • Identifying and fixing hardware/software issues in IoT and SCADA systems. • Implementing redundancies for uninterrupted water monitoring and management. • Measuring water resource impact and improving sustainability. • Interpreting system data for actionable insights to assist decision-makers. • conduct survey to estimate the water requirements in consultation with the Village Water and Sanitation Committee (VWSC) • undertake drinking water quality tests for the geographic area PC3. collate information for water budgeting and water quality mapping • identify location in the community where water quality boards can be put up • collate community related data and suggestions for water conservation, grey water re-use and water usage efficiency potential • verify data and information collected before handover to the relevant authorities • provide suggestions for creating tools and techniques that will engage the community members • conduct stakeholder analysis • enroll communities to participate in various schemes for water conservation and water usage efficiency practices • co-ordinate with the village committees and gram panchayat for implementation of schemes for water conservation and efficient water usage • setup water quality board at gram panchayat for ensuring planning, cleaning and maintenance of water harvesting structures • facilitate the creation of a roadmap for Participatory Rural		

	Appraisal (PRA) activities • engage communities through various tools of Participatory Rural Appraisal (PRA) in coordination with village committees and gram panchayat • ensure participation of diverse social groups of the village from different religions, castes and age groups for triangulation • initiate dialogue and discussion between community members to find solutions on critical issues like health, sanitation, hygiene, etc. • promote campaigns by conducting workshops, distributing flyers, organizing rallies and other awareness building activities • impart training to various local level stakeholders for use and care of the systems and structures installed • identify the needs and requirements of the client and the objectives to be achieved • prepare a checklist of tasks and schedule of activities to achieve the objectives • perform an estimation and costing of the materials and labor required • seek approvals and suggestions on the workplan from the stakeholders • arrange for resources as per plan from authorized sources • implement plan with the support of stakeholders • review the work to ascertain if the objectives are met • ensure to enhance the service delivery, wherever required • seek feedback from stakeholders about the work done • maintain records of the materials consumed and inventory • maintain accounts for incomes/revenues, expenses, margins and cash-flows • identify opportunities for increasing cost effectiveness while maintaining quality and continuity		
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information. • estimate the rain water harvesting potential based on annual rainfall for a catchment area including a rooftop, farm or small community.	They require a range of cognitive and practical skills to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information. Hence the Level is 4	4

	• select a simple water conservation structure suitable for a village dwelling, farm or small community based on type of terrain, area and amount of water harvested • identify site for construction of water harvesting structure • estimate and source materials, tools and labours required for construction of water harvesting structure • estimate size of soak pit required to treat the grey water generated • estimate average grey water generation for a household per day • estimate and source materials and tools required for construction of soak-pit and kitchen garden • perform basic troubleshooting of the remote monitoring system • provide suggestions for creating tools and techniques that will engage the community members • co-ordinate with the village committees and gram panchayat for implementation of schemes • for water conservation and efficient water usage • ensure participation of diverse social groups of the village from different religions, castes and age groups for triangulation • perform an estimation and costing of the materials and labour required • identify opportunities for increasing cost effectiveness while maintaining quality and continuity		
Broad Learning Outcomes/Core Skill	**Desired mathematical skill** • estimate the rain water harvesting potential based on annual rainfall for a catchment area including a rooftop, farm or small community. • estimate and source materials, tools and labours required for construction of water harvesting structure • estimate size of soak pit required to treat the grey water generated		4

	• estimate average grey water generation for a household per day • estimate and source materials and tools required for construction of soak-pit and kitchen garden • perform an estimation and costing of the materials and labour required **Understanding of social, political** • identify the needs and requirements of the client and the objectives to be achieved • seek feedback from stakeholders about the work done • ensure participation of diverse social groups of the village from different religions, castes and age groups for triangulation • initiate dialogue and discussion between community members to find solutions on critical issues like health, sanitation, hygiene, etc. • promote campaigns by conducting workshops, distributing flyers, organising rallies and other awareness building activities • impart training to various local level stakeholders for use and care of the systems and structures installed • engage communities through various tools of Participatory Rural Appraisal (PRA) in coordination with village committees and gram panchayat • enroll communities to participate in various schemes for water conservation and water usage efficiency practices. • conduct stakeholder analysis **Some skill of collecting and organizing information, communication.** • conduct survey to estimate the water requirements in consultation with the Village Water and Sanitation Committee (VWSC) • collate information for water budgeting and water quality mapping		

	• collate community related data and suggestions for water conservation, grey water re-use and water usage efficiency potential • verify data and information collected before handover to the relevant author • conduct stakeholder analysis • estimate the rain water harvesting potential based on annual rainfall for a catchment area including a rooftop, farm or small community		
Responsibility	**Responsibility for own work and learning and some responsibility for others' works and learning.** • Supervise labour for the construction of water conservation structures • co-ordinate with the village committees and gram panchayat for implementation of schemes for water conservation and efficient water usage • engage communities through various tools of Participatory Rural Appraisal (PRA) in coordination with village committees and gram panchayat • ensure participation of diverse social groups of the village from different religions, castes and age groups for triangulation • arrange for resources as per plan from authorized sources • implement plan with the support of stakeholders • review the work to ascertain if the objectives are met	They are fully responsible for their own work and learning and also have some responsibility for others' works and learning such as the labour force they employ and their community members. Hence the Level is 4	4

Annexure 2: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment

Batch Size: 30

S.No	Equipment Name	Minimum No.of Equipment required (per batch of 30 Candidates)	Unit Type	Mandatory Equipment
1	Heavy Weight Table (Wooden / Iron Framed) (To be Fixed on Ground) of size 4'*4'*3'	2	Nos	Yes

2	Wooden Desk for material procurment (6'*2'*3')	2	Nos	Yes
3	Bench Vice (Fixed on Table)	2	Nos	Yes
4	Pipe Vice (Fixed on Table)	2	Nos	Yes
5	Pipe Wrench - 8 "	2	Nos	Yes
6	Pipe Wrench - 10 "	2	Nos	Yes
7	Pipe Wrench - 12 "	2	Nos	Yes
8	Adjustable Spanner - 8"	2	Nos	Yes
9	Adjustable Spanner - 10"	2	Nos	Yes
10	Adjustable Spanner - 12"	2	Nos	Yes
11	Double Ended Spanner Set	2	Nos	Yes
12	Parrot Plier	2	Nos	Yes
13	Nose Plier	2	Nos	Yes
14	Cutting Plier	2	Nos	Yes
15	Screw Driver Set	2	Nos	Yes
16	Hammer	2	Nos	Yes
17	Meter Tape - 3m	5	Nos	Yes
18	Insulation Tape	2	Nos	Yes
19	Plastic Pipe Cutter	2	Nos	Yes
20	Torch Light	2	Nos	Yes
21	Drill Machine	1	Nos	Yes
22	Drill Bit Set	5	Nos	Yes
23	Screw Set (Star)	100	Pieces	Yes
24	Tester	2	Nos	Yes
25	Allen Key Set	1	Nos	Yes
26	Flat File with Handle	2	Nos	Yes
27	Pipe Reamer	2	Nos	Yes

28	Thread Bundle	2	Nos	Yes
29	Water Level Tube	1	Nos	Yes
30	Tri Square	2	Nos	Yes
31	Stainless Steel Scale - 1 ft	5	Nos	Yes
32	Trowel	2	Nos	Yes
33	Shovel	2	Nos	Yes
34	Chisel	2	Nos	Yes
35	Centre Punch	2	Nos	Yes
36	Knife	2	Nos	Yes
37	Plunger	2	Nos	Yes
38	Scotch Bite	5	Nos	Yes
39	Safety Shoe (In Pairs)	5	Nos	Yes
40	Safety Belt	2	Nos	Yes
41	Safety Glass	5	Nos	Yes
42	Safety Gloves (Rubber) (In Pairs)	5	Nos	Yes
43	Safety Gloves (Cotton and Anti Cut) (In Pairs)	5	Nos	Yes
44	Safety Gloves (Heat Resistant) (In Pairs)	5	Nos	Yes
45	Ear Plug	5	Nos	Yes
46	Helmet	5	Nos	Yes
47	Ball Valve (1 inch)	5	Nos	Yes
48	Gate Valve	3	Nos	Yes
49	Monobloc Pump (0.5 HP)	1	Nos	Yes
50	Submersible Pump (1 HP)	1	Nos	Yes
51	Open Well Pump (1 HP)	1	Nos	Yes
52	Centrifugal 10 D Pump (1 HP)	1	Nos	No
53	Shallow Well Pump (1 HP)	1	Nos	Yes
54	Spirit Level (3 ft size)	3	Nos	Yes

55	Spirit Level (1 ft size)	3	Nos	Yes
56	Plumb Bob	5	Nos	Yes
57	CPVC Pipes (1 inch Diameter)	30	Meter	Yes
58	CPVC Tee (1 inch Diameter)	10	Nos	Yes
59	CPVC Elbow (90 degree) (1 inch Diameter)	10	Nos	Yes
60	CPVC MTA (1 inch Diameter)	10	Nos	Yes
61	CPVC FTA (1 inch Diameter)	10	Nos	Yes
62	CPVC Coupler (1 inch Diameter)	10	Nos	Yes
63	CPVC Union (1 inch Diameter)	10	Nos	Yes
64	CPVC Solvent Cement	100 ml	Nos	Yes
65	2 Way Valve (Brass Headed)	5	Nos	Yes
66	3 Way Valve (Brass Headed)	5	Nos	Yes
67	Rope (30 m)	1	Nos	Yes
68	Water Storage Drum	1000	Lt	Yes
69	Hack Saw Frame	5	Nos	Yes
70	Hack Saw Blades	10	Nos	Yes
71	Laptop	1	Nos	Yes
72	Tri-square	5	Nos	Yes
73	SWR Pipe (UPVC) - (4 inch diameter)	30	Ft	Yes
74	SWR Pipe (UPVC) - (2 inch diameter)	30	Ft	Yes
75	SWR Swept Tee (4 inch)	5	Nos	Yes
76	SWR Yee (4 inch)	5	Nos	Yes
77	SWR 90 degree Elbow (4 inch)	5	Each	Yes
78	SWR 45 degree Elbow (4 inch)	5	Nos	Yes
79	SWR Vent Cowl (4 inch)	5	Nos	Yes
80	SWR Swept Tee (2 inch)	5	Nos	Yes
81	SWR Reducer (4 inch - 2 inch)	5	Nos	Yes

82	SWR 90 degree Elbow (2 inch)	5	Nos	Yes
83	SWR Vent Cowl (2 inch)	5	Nos	Yes
84	UPVC solvent (237 ml)	2	Nos	Yes
85	Notepad	30	Nos	Yes
86	Pen	30	Nos	Yes
87	Pencil	30	Nos	Yes
88	Eraser	30	Nos	Yes
89	Sharpener	30	Nos	Yes
90	White Board / Black Board	1	Nos	Yes
91	White Board Marker / Chalk (Blue)	2	Nos	Yes
92	White Board Marker / Chalk (Black)	2	Nos	Yes
93	White Board Marker / Chalk (Red)	2	Nos	Yes
94	Black Board Chalk (White)	2	Nos	Yes
95	White Board / Black Board Duster	1	Nos	Yes
96	Cotton Clothes	3	ft	Yes

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. White Board / Black Board / Smart Board
2. Marker
3. Projector

Annexure 3: Industry Validations Summary

Provide the summary information of all the industry validations in table. This is not required for OEM qualifications.

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile *(if available)*

1	Distil ventures india pvt ltd	Arun Mishra	Director	Okla phase 2, New delhi	9212567826	arjun@distilgroup.com	
2	RecruitPool	Mr. R B Pradhan	Director	178, Lane – 7, Jaganath Vihar, Baramunda, Bhubaneshwar, Orissa	9090115666	clients@recruitpool.net	
3	Khan plumbing work	Kaleem khan	Propertier		9960044419	kaleemkhan3515@gmail.com	
4	The Planet Consultancy Services	Harsh Kumar	Assistant Manager	Paonta bangran road, Paonta Sahib	7018331580	tpsdmconsultancy@gmail.com	
5	Saini and Saini - A design Studio Pvt Ltd	Sunil Saini	Director	Zone 1, MP Nagar, Bhooal	9981648886	ar.saini17@gmail.com	
6	Hindware Limited	Prashad.P. Kumar	Deputy Manager	Banglore	8494977384	prashant.ku@hindware.in	
7	Labournet services india pvt ltd	Prashant Pitke	Head	Banglore	9860342349	prashant.pitke@sahi.ai	
8	Sharma Enterprises	Mam Raj	Manager	N.H.-07, Shamesherpur, Paonta Sahib, Distt.-Sirmour, H.P.-173025	8894363765	thesharmaenterprises318@gmail.com	
9	Urban Mitra services Pvt Limited	Aftab Husain	Operation Manager	RT Nagar, Bengaluru Karnataka	9936620923		
10	All Time Buddy	Anjali Lokhande	Coordinator	Lala Lajpat Rai Society Arera Colony Bhopal M.P	9893949476	alltimebuddy@gmail.com	
11	Vaibhogam Consultancy & Services Private Limited	Harshit Singhal	Director	KH No. 271, Prahalad Vihar, Delhi.	9817831854	info@vaibhogam.com	
12	RVR Innovations, LLP	Narsimhan Rohit	Co-Founder	New Delhi	9821541146	rohitn@mytat.co	
13	Prerna Engineering Educational Group Private Limited	Nitish Kumar	Director	Sec-63, Noida	8607487070	nitesh@prernagroup.org	

14	KAM AVIDA ENVIRO ENGINEERS PVT. LTD	M.ksrishna	Managing Director	Hinjawadi, Tal Mulshi, Dist. Pune	9881091409	mkrishna@kam-avida.com	
15	Jogi Ram Contractor	Mr. Jogi Ram	Contractor	Teh kamrou, Distt Sirmaur (HP)	7018759281		
16	Sarika Safety Services	Dr. Amol Kamble	Manager	D 403, shreyash Vihar, Purandar colony, Bhekrai Nagar, Phursungi	8421352603	Sarikasafety13@gmail.com	
17	Gurukirpa Enterprises	Rohtash Kumar	Proprietor	Jagehta Gujjar Nakur Road,Saharanpur	9817344441		
18	Technip India Pvt Ltd	N. Gopalakrishnan	JGM - Civil and Structural	Chennai	9884982837	gopalakrishnan.nithyanandan@technipenergies.com	
19	KDS Enterprises	Kmaldeep	Propertier	Paonta Sahib, HP	8219215048	Kkdsenterprises476@gmail.com	
20	Hracers Associates LLP	Sunil Raina	General Manager		9717890345	sunil.raina@hracers.com	
21	AamdhanE	Navneet Singh	COO	Hyderabad	8660372722	navneet@aamdhae.com	

Annexure 4: Training & Employment Details

Training and Employment Projections:

Year	Total Candidates		Women		People with Disability	
	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities
2025-26	5000	5000	500	500		
2026-27	5000	5000	500	500		
2027-28	5000	5000	500	500		

Data to be provided year-wise for next 3 years

Training, Assessment, Certification, and Placement Data for previous versions of qualifications:

Qualification Version	Year	Total Candidates				Women				People with Disability			
		Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed
V2.0	2024-2025	187	165	153	125	-	-	-	-	-	-	-	-
V2.0	2023-2024	564	498	408	385	-	-	-	-	-	-	-	-

V2.0	2022-2023	1395	1259	1070	923	-	-	-	-	-	-	-	-

Applicable for revised qualifications only, data to be provided year-wise for past 3 years.

List Schemes in which the previous version of Qualification was implemented:

1. JJM
2. NIPUN
3. PMKVY 4.0

Content availability for previous versions of qualifications:

☒ Participant Handbook ☐ Facilitator Guide ☐ Digital Content ☐ Qualification Handbook ☐ Any Other:

Languages in which Content is available: English, Hindi

Annexure 5: Detailed Assessment Criteria

Detailed assessment criteria for each NOS/Module are as follows:

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PSC/N0151: Install Pump Systems and Related Equipment	*Prepare for work*	**3**	**6**	**-**	**1**
	PC1. assemble pump components and equipment	-	-	-	-
	PC2. prepare the tools, area and materials for the task	-	-	-	-
	PC3. locate and mark position for inlet and outlet supply connections of pump	-	-	-	-
	PC4. Accurately assesses installation site conditions, including space, load requirements, and environmental factors, to determine suitability for pump systems.				
		-	-	-	-
	PC5. Reads and interprets technical drawings, schematics, and piping layouts accurately to ensure proper installation.				
		-	-	-	-
	Install pump and related equipment	**7**	**14**	**-**	**3**
	PC6. fix the pump at the designated location as per instruction	-	-	-	-
	PC7. connect the hoses of inlet and outlet supply to the pump	-	-	-	-

	PC8. make provisions for electrical and other required connections	-	-	-	-
	PC9. ensure prevention of any contact of water and electrical connections with each other	-	-	-	-
	PC10. Correctly assembles pump components, including seals, couplings, and motor alignments, as per manufacturer specifications.				
		-	-	-	-
	PC11. install and connect pump components without any damage to pump, fixture, pipe work, the surrounding environment, or to other services				
		-	-	-	-
	PC12. adjust pressure/flow as per required supply and demand	-	-	-	-
	Check the installation	**5**	**10**	**-**	**1**
	PC13. Performs system testing and calibration to verify functionality, pressure levels, and flow rates.				
		-	-	-	-
	PC14. check installed pump systems for correct functioning and compliance with specifications	-	-	-	-
	PC15. check for cracks, defects and anomalies in the pumping apparatus	-	-	-	-
	PC16. check for condition of couplings in the equipment and pumping on both suction and discharge sides				
		-	-	-	-
	PC17. check the oil level, fuel level, radiator coolant and engine condition of a diesel operated pump.				
		-	-	-	-
	PC18. check air release valve, and prime the pump	-	-	-	-
	PC19. Identify and resolves installation issues, such as misalignment, leaks, or incorrect wiring, promptly and efficiently.				
		-	-	-	-
	PC20. Safely and effectively uses tools and equipment, such as torque wrenches, pipe cutters, and alignment tools, necessary for installation.				
		-	-	-	-
	NOS Total	**15**	**30**	**-**	**5**
	Operational Performance of the pump	**4**	**8**	**-**	**2**

PSC/N0152: Operate and Maintain Pumps and Related Machinery	**PC1.** Ensure the pump delivers the required flow rate as specified in system requirements.	-	-	-	-
	PC2. Maintain the desired discharge and suction pressures to meet system demands.	-	-	-	-
	PC3. Optimize energy consumption to achieve maximum efficiency during operation.	-	-	-	-
	PC4. Monitor operating temperatures to prevent overheating or thermal damage.	-	-	-	-
	PC5. Operate within acceptable noise limits to avoid disturbances and detect abnormal sounds.	-	-	-	-
	Maintenance of the pump and related machinery	**4**	**8**	**-**	**2**
	PC6. Ensure proper lubrication of bearings and moving parts to minimize wear and tear.	-	-	-	-
	PC7. Verify pump and motor alignment to prevent vibration and mechanical failure.	-	-	-	-
	PC8. Regularly inspect and replace worn seals to prevent leaks.	-	-	-	-
	PC9. Check for impeller wear, corrosion, or clogging and address as necessary.	-	-	-	-
	PC10. Monitor and minimize vibration to avoid structural damage and maintain stability.	-	-	-	-
	Safety and Compliance standards	**4**	**8**	**-**	**1**
	PC11. Ensure functional emergency shutdown systems are in place.	-	-	-	-
	PC12. Verify that all electrical connections, grounding, and insulation are secure.	-	-	-	-
	PC13. Maintain protective guards around moving parts to prevent accidents.	-	-	-	-
	PC14. Adhere to local regulations and manufacturer guidelines for operation and maintenance.	-	-	-	-
	PC15. Keep accurate maintenance logs and operational records for traceability.	-	-	-	-
	System Integration	**3**	**6**	**-**	**-**

	PC16. Regularly check associated valves for proper operation and leak prevention.	-	-	-	-
	PC17. Inspect connected pipes for cracks, corrosion, and secure fittings.	-	-	-	-
	PC18. Calibrate pressure gauges, flow meters, and temperature sensors regularly.	-	-	-	-
	PC19. Follow correct protocols for starting and stopping the pump system.	-	-	-	-
	PC20. Ensure redundant or backup systems are operational in case of primary pump failure.	-	-	-	-
	NOS Total	**15**	**30**	**-**	**5**
PSC/N0153: Perform Maintenance of Local Ground Water Source and Water Quality Monitoring at Water Supply Stations	*Maintain dug well*	**3**	**6**	**-**	**1**
	PC1. clean the concrete apron and debris in the well	-	-	-	-
	PC2. check the concrete apron and well seal for cracks and repair with cement mortar as needed	-	-	-	-
	PC3. check the condition of the rope, pulley, support posts, bucket and fence and repair or replace when needed.	-	-	-	-
	PC4. lubricate the pulley as needed with grease	-	-	-	-
	PC5. record the water level with a rope scale	-	-	-	-
	PC6. repair any structural damage to the well and surrounding structure	-	-	-	-
	PC7. dewater the well and clean the bottom	-	-	-	-
	PC8. inspect the well walls and lining and repair as needed	-	-	-	-
	PC9. check the water level and deepen/de-silt the well especially in monsoon	-	-	-	-
	Maintain hand pump	**3**	**6**	**-**	**1**
	PC10. check all the flange nuts and bolts, axle bolt, flange bolts and tighten as needed	-	-	-	-
	PC11. tighten the handle axle nut and lock nut	-	-	-	-
	PC12. verify whether hand pump is firm on its base and fix it if needed	-	-	-	-
	PC13. open the cover and clean inside the pump	-	-	-	-

	PC14. dismantle the hand pump for inspection/cleaning and reassemble after inspection	-	-	-	-
	PC15. check the chain anchor bolt for proper position and tighten if needed	-	-	-	-
	PC16. verify rusty patches, clean with a wire brush and apply anticorrosive paint	-	-	-	-
	PC17. verify the discharge of water	-	-	-	-
	PC18. verify the handle position and repair if needed	-	-	-	-
	PC19. verify whether guide bush, roller chain is not excessively worn out and replace if needed	-	-	-	-
	PC20. clean and de-calcify pump components	-	-	-	-
	PC21. take action as per standard operating procedure to troubleshoot faults occurring in the hand pump	-	-	-	-
	Maintain tube well and bore well	**3**	**6**	**-**	**1**
	PC22. operate pump starter and isolation valve	-	-	-	-
	PC23. check if readings on ammeter and voltmeter are normal – stop pump if electric motor is drawing too much current	-	-	-	-
	PC24. verify whether adequate water is being delivered	-	-	-	-
	PC25. clean the pump house	-	-	-	-
	PC26. check for leaks in the rising main	-	-	-	-
	PC27. remove the pump and rising main from the well and inspect	-	-	-	-
	PC28. inspect pipes, electric cables, insulation between cables	-	-	-	-
	PC29. record servicing and maintenance in logbook	-	-	-	-
	PC30. re-cut corroded or damaged threads and replace badly corroded pipes	-	-	-	-
	PC31. de-silt borehole if required	-	-	-	-
	PC32. take action as per standard operating procedure to troubleshoot faults occurring in the tube or bore well	-	-	-	-
	Maintain spring source and surface water source	**3**	**6**	**-**	**1**
	PC33. check whether the area is free from waste disposal and defecation	-	-	-	-

	PC34. check there is no unwanted human intervention or animal intrusion	-	-	-	-
	PC35. check intake for clogging and submergence	-	-	-	-
	PC36. repair any small damages to the intake system	-	-	-	-
	PC37. dewater and clean the bottom of the spring source	-	-	-	-
	PC38. check the water level of the surface water source and de-silt as per requirement	-	-	-	-
	Monitor water quality	**3**	**6**	**-**	**1**
	PC39. adhere to water sampling schedule as per standard operating procedure	-	-	-	-
	PC40. identify a water sampling site representative to the source and in line with sampling guidelines	-	-	-	-
	PC41. obtain water samples from dug well, hand pump, tube well and bore well for quality testing	-	-	-	-
	PC42. test water quality using a field test kit	-	-	-	-
	PC43. store and send samples for laboratory testing	-	-	-	-
	PC44. interpret relevant information from water quality report	-	-	-	-
	PC45. share water quality test results with appropriate authorities	-	-	-	-
	NOS Total	**15**	**30**	**-**	**5**
PSC/N0154: Maintain of Water Distribution and Storage Systems at Water Supply Stations	*Maintain sump and storage tanks*	**4**	**8**	**-**	**1**
	PC1. dewater sump and tank	-	-	-	-
	PC2. clean, disinfect and rinse the sump and tank	-	-	-	-
	PC3. desilt the area and pump house.	-	-	-	-
	PC4. perform leakage test and carry out rectification if needed with epoxy coating, cement concreting, painting etc.	-	-	-	-
	Maintain water meters	**3**	**6**	**-**	**1**
	PC5. clean the dirt box or strainer	-	-	-	-
	PC6. replace gaskets upon its wear and tear	-	-	-	-
	PC7. clean the chamber where meter is installed	-	-	-	-
	PC8. prevent water seepage into the water meter	-	-	-	-
	PC9. verify if water meter is given correct reading	-	-	-	-

	PC10. disassemble and reassemble the water meter for verification or repair	-	-	-	-
	PC11. take action as per standard operating procedure to troubleshoot common faults in water meters	-	-	-	-
	PC12. clean the disassembled parts	-	-	-	-
	Monitor and maintain flow meters	**3**	**6**	**-**	**1**
	PC13. check the range and zero setting of the flow meter	-	-	-	-
	PC14. inspect for bearing wear out, deposits in flow meter or corrosion of attached pipes	-	-	-	-
	PC15. take action as per standard operating procedure to troubleshoot common faults in flow meters	-	-	-	-
	Operate and maintain and repair pipelines	**5**	**10**	**-**	**2**
	PC16. operate water pipelines with positive pressure and by opening and shutting off the valves gradually	-	-	-	-
	PC17. flush the system to clear sediments	-	-	-	-
	PC18. service the valve chamber and valves	-	-	-	-
	PC19. inspect the pipelines for damage, wear and tear, leakage, entrainment and water hammer	-	-	-	-
	PC20. locate the leaks in the pipes	-	-	-	-
	PC21. replace faulty parts like gaskets, valves joints and pipes that are not repairable	-	-	-	-
	PC22. repair damaged pipelines	-	-	-	-
	PC23. apply cement mortar lining on corroded pipes	-	-	-	-
	NOS Total	**15**	**30**	**-**	**5**
PSC/N0155: Operate Water Treatment Units Basic maintenance of water treatment units Health, Safety, and Environmental Performance Criteria	*Operate Water Treatment Units*	**6**	**12**	**-**	**2**
	PC1. Ensure treated water meets regulatory and quality standards (e.g., pH, turbidity, TDS, and microbial safety).	-	-	-	-
	PC2. Maintain the specified inflow and outflow rates.	-	-	-	-
	PC3. Continuously monitor parameters like turbidity, pH, chlorine levels, and conductivity.	-	-	-	-
	PC4. Regularly inspect pipelines, tanks, and valves for leaks or corrosion.	-	-	-	-

	PC5. Perform filter backwashing regularly and as needed to restore performance.	-	-	-	-
	PC6. Properly handle, dewater, and dispose of sludge generated during treatment.	-	-	-	-
	PC7. Have a clear response plan for power outages, equipment failures, or water contamination events.	-	-	-	-
	Basic maintenance of water treatment units	**6**	**12**	**-**	**2**
	PC8. Adhere to a regular maintenance schedule for all equipment.	-	-	-	-
	PC9. Inspect and service pumps to prevent breakdowns.	-	-	-	-
	PC10. Replace or clean filter media (e.g., sand, activated carbon) periodically.	-	-	-	-
	PC11. Regularly calibrate flowmeters, pressure gauges, and chemical dosing equipment.	-	-	-	-
	PC12. Clean and inspect storage tanks to prevent biofilm growth and contamination.	-	-	-	-
	PC13. Test and maintain valves for smooth operation.	-	-	-	-
	PC14. Maintain an adequate inventory of critical spare parts.	-	-	-	-
	PC15. Detect and repair leaks or blockages in distribution pipelines.	-	-	-	-
	PC16. Inspect and mitigate corrosion in metallic parts.	-	-	-	-
	PC17. Regularly lubricate moving parts of mechanical systems.	-	-	-	-
	Health, Safety, and Environmental Performance Criteria	**3**	**6**	**-**	**1**
	PC18. Use personal protective equipment (PPE) and follow safety protocols.	-	-	-	-
	PC19. Regularly train staff on operating procedures and safety practices.	-	-	-	-
	PC20. Minimize environmental impact by adhering to discharge and waste management regulations.	-	-	-	-
	PC21. Keep accurate records of operations, maintenance, and incidents.	-	-	-	-
	NOS Total	**15**	**30**	**-**	**5**

PSC/N0136: Apply Health and Safety Practices at the Workplace	*Follow safety measures to avoid accidents*	**12**	**32**	**-**	**5**
	PC1. identify risks and hazards at the workplace	1	2	-	0.5
	PC2. wear personal protective equipment (PPE) as per the type of plumbing work	1	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	-	0.5
	PC5. adhere to organizational procedures for reporting hazards and incidents to relevant authorities	1	4	-	0.5
	PC6. establish ventilation before entering underground work areas	1	4	-	0.5
	PC7. work safely in and around trenches, elevated places and confined areas	1	3	-	0.5
	PC8. ensure tools and hazardous materials are not left unattended	1	3	-	0.5
	PC9. ensure good housekeeping in order to prevent hazards e.g. fire	2	3	-	0.5
	PC10. dispose waste materials and used PPE according to regulations and codes of practice	2	3	-	0.5
	Follow hygiene and sanitation practices	**3**	**8**	**-**	**2**
	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	-	1
	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	-	0.5
	Use tools, equipment and materials safely	**7**	**8**	**-**	**1**
	PC14. check that the tools, equipment and materials are in good condition and as per industry standards before use	2	2	-	0.25
	PC15. use power tools and machinery that are grounded	2	2	-	0.25
	PC16. replace or repair split or loose tools before use	1	2	-	0.25

	PC17. store and transport various plumbing materials safely	2	2	-	0.25
	Deal with emergencies	**8**	**12**	-	**2**
	PC18. follow workplace emergency and evacuation procedures	2	3	-	0.5
	PC19. use a fire extinguisher correctly	2	3	-	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	3	-	0.5
	NOS Total	**30**	**60**	-	**10**
DGT/VSQ/N0102: Employability Skills (60 Hours)	*Introduction to Employability Skills*	**1**	**1**	-	-
	PC1. identify employability skills required for jobs in various industries	-	-	-	-
	PC2. identify and explore learning and employability portals	-	-	-	-
	Constitutional values – Citizenship	**1**	**1**	-	-
	PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
	PC4. follow environmentally sustainable practices	-	-	-	-
	Becoming a Professional in the 21st Century	**2**	**4**	-	-
	PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
	PC6. practice the 21st Century Skills such as Self- Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
	Basic English Skills	**2**	**3**	-	-
	PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
	PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-

	PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
	Career Development & Goal Setting	**1**	**2**	-	-
	PC10. understand the difference between job and career	-	-	-	-
	PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
	Communication Skills	**2**	**2**	-	-
	PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
	PC13. work collaboratively with others in a team	-	-	-	-
	Diversity & Inclusion	**1**	**2**	-	-
	PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
	PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
	Financial and Legal Literacy	**2**	**3**	-	-
	PC16. select financial institutions, products and services as per requirement	-	-	-	-
	PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
	PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
	PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
	Essential Digital Skills	**3**	**4**	-	-
	PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
	PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
	PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-
	Entrepreneurship	**2**	**3**	-	-

	PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research				
		-	-	-	-
	PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion				
		-	-	-	-
	PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity				
		-	-	-	-
	Customer Service	**1**	**2**	**-**	**-**
	PC26. identify different types of customers	-	-	-	-
	PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
	PC28. follow appropriate hygiene and grooming standards	-	-	-	-
	Getting ready for apprenticeship & Jobs	**2**	**3**	**-**	**-**
	PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
	PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively				
		-	-	-	-
	PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
	PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
	PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
	NOS Total	**20**	**30**	**-**	**-**
Grand Total		**125**	**240**		**35**

Annexure 6: Assessment Strategy

This section includes the processes involved in identifying, gathering, and interpreting information to evaluate the Candidate on the required competencies of the program.

Mention the detailed assessment strategy in the provided template.

Assessment is done through third parties who are affiliated to WMPSC as Assessment Body. Assessors are trained & certified by WMPSC 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

Annexure 7: Acronym and Glossary

Acronym

Acronym	Description
AA	Assessment Agency
AB	Awarding Body
ISCO	International Standard Classification of Occupations
NCO	National Classification of Occupations
NCrF	National Credit Framework
NOS	National Occupational Standard(s)
NQR	National Qualification Register
NSQF	National Skills Qualifications Framework
OJT	On the Job Training
ES	Employability Skills

Glossary

Term	Description
National Occupational Standards (NOS)	NOS define the measurable performance outcomes required from an individual engaged in a particular task. They list down what an individual performing that task should know and also do.
Qualification	A formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards
Qualification File	A Qualification File is a template designed to capture necessary information of a Qualification from the perspective of NSQF compliance. The Qualification File will be normally submitted by the awarding body for the qualification.
Sector	A grouping of professional activities on the basis of their main economic function, product, service or technology.
Long Term Training	Long-term skilling means any vocational training program undertaken for a year and above. https://ncvet.gov.in/sites/default/files/NCVET.pdf