



QUALIFICATION FILE

Sewage Treatment Plant 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

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Section 1: Basic Details

1.	Qualification Name	Sewage Treatment Plant (STP) Operator	
2.	Sector/s	Water Management and Plumbing	
3.	Type of Qualification: <input checked="" type="checkbox"/> New <input type="checkbox"/> Revised <input type="checkbox"/> Has Electives/Options <input type="checkbox"/> OEM	NQR Code & version of existing/previous qualification:	Qualification Name of existing/previous version:
4.	a. OEM Name b. Qualification Name <i>(Wherever applicable)</i>		
5.	National Qualification Register (NQR) Code &Version <i>(Will be issued after NSQC approval)</i>	QG-04-TH-02938-2024-V1-WMPS Version – 1.0	6. NCrf/NSQF Level: 4
7.	Award (Certificate/Diploma/Advance Diploma/ Any Other <i>(Wherever applicable specify multiple entry/exits also & provide details in annexure)</i>	Certificate	
8.	Brief Description of the Qualification	The Sewage Treatment Plant Operator is responsible for the operation, monitoring, and maintenance of sewage treatment plants. They ensure that wastewater is treated effectively and in compliance with environmental regulations. Sewage Treatment Plant Operators perform various tasks to control and maintain the treatment process, troubleshoot issues, and ensure the plant's efficient and safe operation.	

9.	Eligibility Criteria for Entry for Student/Trainee/Learner/Employee	<p>a. Entry Qualification & Relevant Experience:</p> <table border="1" data-bbox="1025 180 2033 603"> <thead> <tr> <th>S. No.</th> <th>Academic/Skill Qualification (with Specialization - if applicable)</th> <th>Required Experience (with Specialization - if applicable)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>12th Grade Pass</td> <td></td> </tr> <tr> <td>2.</td> <td>11th Grade Pass</td> <td>1.5 year of relevant experience in Water Supply/ Water Treatment/ Quality Control</td> </tr> <tr> <td>3.</td> <td>Previous relevant Qualification of NSQF Level 3.5</td> <td>1.5 years of relevant experience in Water Supply/ Water Treatment/ Quality Control</td> </tr> <tr> <td>4.</td> <td>Previous relevant Qualification of NSQF Level 3.0</td> <td>3 years of relevant experience in Water Supply/ Water Treatment/ Quality Control</td> </tr> </tbody> </table> <p>b. Age: 18 Years</p>						S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1.	12th Grade Pass		2.	11th Grade Pass	1.5 year of relevant experience in Water Supply/ Water Treatment/ Quality Control	3.	Previous relevant Qualification of NSQF Level 3.5	1.5 years of relevant experience in Water Supply/ Water Treatment/ Quality Control	4.	Previous relevant Qualification of NSQF Level 3.0	3 years of relevant experience in Water Supply/ Water Treatment/ Quality Control		
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)																						
1.	12th Grade Pass																							
2.	11th Grade Pass	1.5 year of relevant experience in Water Supply/ Water Treatment/ Quality Control																						
3.	Previous relevant Qualification of NSQF Level 3.5	1.5 years of relevant experience in Water Supply/ Water Treatment/ Quality Control																						
4.	Previous relevant Qualification of NSQF Level 3.0	3 years of relevant experience in Water Supply/ Water Treatment/ Quality Control																						
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)	<input checked="" type="checkbox"/> Offline <input type="checkbox"/> Online <input type="checkbox"/> Blended <table border="1" data-bbox="949 1042 2049 1217"> <thead> <tr> <th>Training Delivery Modes</th> <th>Theory (Hours)</th> <th>Practical (Hours)</th> <th>OJT Mandatory (Hours)</th> <th>OJT Recommended (Hours)</th> <th>Total (Hours)</th> </tr> </thead> <tbody> <tr> <td>Classroom (offline)</td> <td>120</td> <td>240</td> <td>90</td> <td></td> <td>450</td> </tr> <tr> <td>Online</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(Refer Blended Learning Annexure for details)</p>					Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)	Classroom (offline)	120	240	90		450	Online					
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																			
Classroom (offline)	120	240	90		450																			
Online																								
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO-2015/3132.0400																						
15.	Progression path after attaining the qualification (Please show Professional and Academic progression)	<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 20px;">Sewage Treatment Plant Operator (L4)</div> → <div style="border: 1px solid black; padding: 5px; margin-left: 20px;">Plant Supervisor (L5)</div> </div>																						

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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No URLs of similar Qualifications:	
18.	Is the Job Role Amenable to Persons with Disability	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If "Yes", specify applicable type of Disability: Deaf, Hard of Hearing, Speech and Language disability	
19.	How Participation of Women will be Encouraged	<p>Encouraging the participation of women in the role of Sewage Treatment Plant 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 operation and management of STPs. Here are some strategies to encourage women's participation in this field:</p> <p>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 STP operator role and the opportunities it offers.</p> <p>Role Models: Highlight success stories of women STP operator to inspire and motivate others.</p> <p>Partnerships with NGOs: Partner with NGOs and other organizations working on gender equality to create programs that support women entering the field.</p> <p>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 STP operator roles.</p>	
20.	Are Greening/ Environment Sustainability Aspects Covered (Specify the NOS/Module which covers it)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Covered in PSC/N0606 and DGT/VSQ/N0101)	
21.	Is Qualification Suitable to be Offered in Schools/Colleges	Schools <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Colleges <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
22.	Name and Contact Details of Submitting / Awarding Body SPOC (In case of CS or MS, provide details of both Lead AB & Supporting ABs)	Name: Himanshu Singh Email: standards@wmpsc.in Website: www.wmpsc.in Contact No.: +917906577202	
23.	Final Approval Date by NSQC: 27-08-2024	24. Validity Duration: 3 years	25. Next Review Date: 27-08-2027

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.	Operating Sewage Treatment Plant (STP)	PSC/N0604, v1.0	Core	4	6	45	90	45	-	180	30	60	-	10	100	35	
2.	Monitoring and Managing Sewage Treatment Plant	PSC/N0601, v1.0	Core	4	3	15	60	15	-	90	30	60	-	10	100	15	
3.	Solid Waste Management	PSC/N0606, v1.0	Core	4	4	20	70	30	-	120	30	60	-	10	100	25	
4.	Maintain Records & Reporting at Site	PSC/N0603, v1.0	Core	4	0.5	05	10	-	-	15	30	60	-	10	100	10	
5.	Health and Safety Practices at the treatment Plant	PSC/N0602, v1.0	Non-Core	4	0.5	05	10	-	-	15	30	60	-	10	100	10	
6.	Employability Skills (30 Hours)	DGT/VSQ/N0101	Non-Core	2	1	30	-	-	-	30	20	30	-	-	50	5	
Duration (in Hours) / Total Marks						15	120	240	90		450	170	330		50	550	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 or Mechanical or Environmental Engineering with 2 years of relevant experience OR Diploma in Civil or Mechanical Engineering with 4 years of relevant experience OR Graduation in Environmental Science/ Water Management with 2 years of relevant experience
2.	Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	M. Tech in Civil or Mechanical or Environmental Engineering with 2 years of relevant experience OR B.E. / B. Tech in Civil or Mechanical or Environmental Engineering with 4 years of relevant experience OR Diploma in Civil or Mechanical Engineering with 5 years of relevant experience OR Graduation in Environmental Science/ Water Management with 4 years of relevant experience
3.	Tools and Equipment Required for Training	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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 or Mechanical or Environmental Engineering with 2 years of relevant experience OR Diploma in Civil or Mechanical Engineering with 3 years of relevant experience OR Graduation in Environmental Science/ Water Management with 2 years of relevant experience
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 OR 12 th Grade Pass in any stream with 5 years 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 2 years of relevant experience OR

		Diploma in Civil or Mechanical Engineering with 5 years of relevant experience OR Graduation in Environmental Science/ Water Management with 3 Year of Relevant Experience
4.	Assessment Mode (<i>Specify the assessment mode</i>)	Both Digitized and Non-digitized Mode
5.	Tools and Equipment Required for Assessment	<input checked="" type="checkbox"/> Same as for training <input type="checkbox"/> Yes <input type="checkbox"/> No (<i>details to be provided in Annexure-if it is different for Assessment</i>)

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: 31
5.	Estimated nos. of persons to be trained and employed: 5,000
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 (<i>Mandatory</i>)	Annexure-1
2.	Annexure: List of tools and equipment relevant for qualification (<i>Mandatory, except in case of online course</i>)	Annexure-2
3.	Annexure: Detailed Assessment Criteria (<i>Mandatory</i>)	Annexure-5
4.	Annexure: Assessment Strategy (<i>Mandatory</i>)	Annexure-6
5.	Annexure: Blended Learning (<i>Mandatory, in case selected Mode of delivery is “Blended Learning”</i>)	NA
6.	Annexure: Multiple Entry-Exit Details (<i>Mandatory, in case qualification has multiple Entry-Exit</i>)	NA
7.	Annexure: Acronym and Glossary (<i>Optional</i>)	Annexure-7

8.	Supporting Document: Model Curriculum (<i>Mandatory – Public view</i>)	<i>Attached</i>
9.	Supporting Document: Career Progression (<i>Mandatory - Public view</i>)	<i>Attached</i>
10.	Supporting Document: Occupational Map (<i>Mandatory</i>)	<i>Attached</i>
11.	Supporting Document: Assessment SOP (<i>Mandatory</i>)	<i>Attached</i>
12.	Any other document you wish to submit:	<i>No</i>

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	<ul style="list-style-type: none"> Process of operating Sewage Treatment Plant (STP) Process of monitoring and maintenance of Sewage Treatment Plant Process of disposal of sewage effluents Process of handling sludge and producing biogas Process of managing solid waste Process of maintaining records and reporting activities 	Sewage Treatment Plant (STP) Operator during the job works in familiar, predictable, routine, situation of clear choice.	4
Professional and Technical Skills/ Expertise/ Professional Knowledge	<ul style="list-style-type: none"> Understand the importance and necessity of water treatment. Know basic terminologies such as discharge, flow velocity, settling velocity, turbulence, organic loading rate, hydraulic loading rate, overflow rate, recirculation, and efficiency. Understand physical water characteristics including total solids, suspended solids, and settleable solids. Knowledge of chemical water characteristics such as pH, chloride content, nitrogen content, fats, oil, grease, sulphates, hydrogen sulphide, and dissolved oxygen. Knowledge of biological water characteristics like COD (Chemical Oxygen Demand), BOD (Biochemical Oxygen Demand), nitrification, and denitrification. Understand decomposition processes by aerobic, anaerobic, and facultative bacteria, and other processes like neutralization, absorption, adsorption, oxidation/reduction, and ion exchange. Knowledge of sewage effluent disposal methods. Knowledge of various sewage treatment operations including screening, grit chamber, flow equalization chamber, detritus tank, aeration tank, skimming tank, primary sedimentation tank, and coagulation-aided sedimentation. Understand biological sewage treatment processes like sludge 	The Sewage Treatment Plant (STP) Operator should possess the practical knowledge of his field.	4

	<p>digestion, trickling filters, membrane bio reactors, activated sludge process, waste stabilization pond, drying beds, and tertiary treatment.</p> <ul style="list-style-type: none"> • Know the process of gas purification in scrubber units, especially gas evolved during sludge digestion. • Understand methods for cleaning different units within a sewage treatment plant. • Knowledge of safe handling and use of chemicals in sewage treatment processes. • Understand the overall process of sewage treatment from inflow to outflow. • Knowledge of various methods for handling sewage sludge. • Know the different types and functions of mechanical instruments used in sewage treatment plants, including pumps, blowers, centrifugal separators, and aerators. 		
<p>Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill</p>	<ul style="list-style-type: none"> • Start the sewage treatment plant by activating pumps, mixers, controllers, and other equipment. • Perform necessary manual tasks within the sewage treatment plant operations. • Operate valves effectively by checking, opening, and closing them as required. • Control discharge rates at inflow and outflow points of the sewage treatment plant. • Collect samples and assist with sample calibrations as part of quality control processes. • Monitor and execute various operations essential for sewage treatment plant functionality. • Conduct chemical mixing operations when necessary for treatment processes. • Manage accumulated sludge properly to ensure efficient treatment operations. • Execute gas purification processes within scrubber units derived from sludge digestion. • Maintain accurate and timely documentation as per operational and regulatory requirements. 	<p>Sewage Treatment Plant (STP) Operator should have practical skills which are routine and repetitive and should use quality concepts.</p>	<p>4</p>

Broad Learning Outcomes/Core Skill	<ul style="list-style-type: none"> • Demonstrating proficiency in preparing work areas, piping materials, and tools for plumbing and water management tasks. • Mastering the installation techniques for water supply systems, drainage pipes, sanitary fixtures, and CP fittings. • Developing problem-solving abilities to diagnose and rectify faults in plumbing systems and fixtures. • Acquiring expertise in the installation and operation of pumping systems and associated machinery. • Implementing procedures for the operation and upkeep of water treatment units within sewage treatment plants. • Maintaining water distribution and storage systems effectively within water supply stations. • Identifying and understanding fundamental electrical and solar components applicable to sewage treatment operations. • Learning to install, operate, and maintain electrical panel boards and solar pumping systems used in sewage treatment facilities. • Emphasizing the importance of health and safety practices while working in sewage treatment plant operations. • Cultivating effective teamwork and communication skills within the context of sewage treatment plant operations. • Developing employability and entrepreneurship skills tailored to the sewage treatment plant industry. 	<p>Sewage Treatment Plant (STP) Operator should have good communication skills both written and oral. He/ She should be able to solve basic arithmetic and algebraic principles and should have better understanding of social political and natural environment.</p>	<p>4</p>
Responsibility	Responsibility for own work and Learning. <ul style="list-style-type: none"> • Prepare for sewage treatment. • Carry out operations in STP • Monitoring the STP • Managing the STP • Prepare for disposal of waste • Disposal of waste • Understand how to maintain records and data • Preparation of report • Respond to higher officials • Health maintaining at STP 	<p>Sewage Treatment Plant (STP) Operator should know to take responsibility of own work and learning.</p>	<p>4</p>

- | | | | |
|--|------------------------------|--|--|
| | • Safe work practices at STP | | |
|--|------------------------------|--|--|

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

List of Tools and Equipment

Batch Size: 30

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1.	Notepad	Nos	30
2.	Pen	Nos	30
3.	Pencil	Nos	30
4.	Eraser	Nos	30
5.	Sharpener	Nos	30
6.	White Board / Black Board	Nos	2
7.	White Board Marker / Chalk (Blue)	Nos	2
8.	White Board Marker / Chalk (Black)	Nos	2
9.	White Board Marker / Chalk (Red)	Nos	2
10.	Black Board Chalk (White)	Nos	2
11.	White Board / Black Board Duster	Nos	1
12.	Cotton Clothes	Meter	1
13.	Pump	Nos	2
14.	Aeration Systems	Nos	2
15.	Sedimentation Tanks	Nos	2
16.	Filtration Systems	Nos	2
17.	Disinfection Equipment	Nos	2
18.	Chemical Dosing Systems	Nos	2
19.	Sludge Dewatering Equipment	Nos	2
20.	Pipes and Fittings	Set	1
21.	Monitoring Instruments	Set	1
22.	Control Systems	Set	1
23.	Safety Gear (e.g., Gloves, Goggles)	Set	30
24.	pH Meter	Nos	3
25.	Microscope	Nos	1
26.	Anaerobic Digesters	Nos	2
27.	Gas Flow Meters	Nos	2
28.	Mixing Equipment (e.g., Pumps, Mixers)	Nos	2
29.	Gas Analyzers (e.g., Methane, Carbon Dioxide)	Nos	2
30.	Biogas Storage Tanks	Nos	2
31.	Sludge Dewatering Equipment (e.g., Centrifuges)	Nos	2
32.	Remote Monitoring Systems	Nos	2
33.	Safety Boots	Pair	30

34.	Safety goggles	Nos	30
35.	Respirators or Masks	Nos	30
36.	Hard Hats	Nos	30
37.	First Aid Kits	Kit	5
38.	Fire Extinguishers	Nos	2
39.	Safety Signs and Labels	Nos	2
40.	Safety Gloves	Pair	30

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.	Hayo Engineering & Services	Dr. K. Harsha	Director-Operation	Pune		drharshakhadke@gmail.com	
2.	Metafurn International FZCO	Saran Jawale	Plant Head-Operations	Jebel Ali, U.A.E	+971501006847		
3.	Nirmay Instruments Pvt Ltd, Pune	Hiralal.K Bendale	Director	Pune	9922836415	nirmal.instruments@gmail.com	
4.	CETP & Pollution Control Advisory Committee	B.C. Patel	Chairman	Nandesari	9824001925		
5.	Coromandel International Ltd	Vijaysinh Chauhan	Unit HR	Nandesari, Vadodara	6357109446	chauhanvsk@oromandel.murugappa.com	
6.	Omkar Chemical Industries Pvt. Ltd.	Dharmesh Dattani	Asst. HR. Manager	Panoli			
7.	Mega Innovative Crops	Shrimesh C Patel	Factory Manager	Panoli	9687654315	shrimesh.patel@gmail.com	
8.	Nandesari Industries Association (Common Effluent Treatment Plant)	Babu Bhai Patel	Chairman	Nandesari	0265-2841016	niacetp@gmail.com	

9.	Qualikems Lifesciences Pvt Ltd	Ashok Sahni	Director	Nandesari, Vadodara	9911665530	career@qualikems.com	
10.	Sujag Fine Chemicals Pvt.Ltd.	Ritesh J Patel	Manager	Nandesari, Vadodara	02652983844	admin@sijagfinechemicals.com	
11.	Panoli Intermediates (India) Pvt. Ltd.	Amit Patel	Manager- HR	Vadodara	7043718765	hrmgr@kcil.co.in	
12.	Sodium Metal Private Ltd	Hiren Shah	Head-HR	Vadodara	9662187227	hiren@smfinechem.in	
13.	Darshan Interchem Private Limited	Jitendr. R. Patel	Director	Vadodara	9979898481	info@dicpl.in	
14.	ACI Industrial Organic Pvt. Ltd.	Anant A Amin.	General Manager	Vadodara	9825294636	anant.amin@aci.net.in	
15.	Adroit Pharmachem Pvt. Ltd	Janhavi Kharchikar	Sr. Executive- HR	Vadodara	6358731078	hr@adroitpharmachem.com	
16.	Bharat Parenterals Ltd	Mohit Navale	HR/Admin Head	Vadodara	9909928396	mohit.navale@bplindia.in	
17.	Best Value Chem Pvt. Ltd.	Hemant Kumar Singh	Deputy General Manager	Vadodara	9099076325	hemant@bestvaluechem.com	
18.	Shree Shakti Industries	Nilesh G. Pandya	Partner	Khandiwada	9033001023	shreeshaktiindustries@gmail.com	
19.	Krishna Chemicals	Chinmay Jetly	Partner	Vadodara	8460332992	Krishna_chem_in@yahoo.com	
20.	Uma Organics	Mihir Shah	Managing Partner	Manjusar, Vadodara	9427931190	umaorganics@yahoo.com	
21.	Base Metal Chemicals	R N Pandey	Sr. Manager HR & A	Vadodara	9978901869	Bmc_admin@basemetal.co.in	
22.	Pro-Ramangamdi Industrial Estate Association	Ravi Joshi	Secretary Gidc Por	Por Ramangamdi Vadodara	9898033374	porgidcassociation@gmail.com	
23.	IMSAFE Products AND Services LLP	Paresh Bhagat	Manager Admin	Vadodara	9879618302	accounts@imsafe.co.in	
24.	Emcure Pharmaceuticals Ltd.	Virendrasinh Jadeja	Manager HR	Kadu, Surendranagar	9724262424	Virendrasinh.jadeja@emcure.com	
25.	Vimal Fire Controls Pvt. Ltd.	Manoj Kumar Chaubey	P&A Head	Vadodara	9925025610	travel@vimalfire.com	
26.	Vital Cast	Ravi Joshi	Company C/O	Por Ramangamdi Vadodara	9898033374	ravijoshivital@gmail.com	
27.	Typsa India Pvt Ltd	Gaurav Sharma	Assistant Manager Plumbing and	Gurgaon	7015342916	gaurav11411@gmail.com	

			Firefighting Design				
28.	Panoli Industries Association	B.S.Patel	President	Panoli	9426807043	piapanoli@yahoo.com	
29.	Birla Century	Rajdeepsinh Jhala	Sr. Manager Finance	Bharuch	9825622286	Rajdeepsinh.jhala@adityabirla.com	
30.	Kivi Labs Ltd	Ketan Pathak	Manager Production	Vadodara, Gujarat	9375797469	info@kivilabs.in	
31.	Jai Shree Ram Poly Trade	Deepak Patel	President GIDC Por	Vadodara	9925036937	deeps.jost@gmail.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
2024-25	1000	1000	60	60		
2025-26	1500	1500	100	100		
2026-27	2500	2500	150	150		

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
v1.0													

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.
- 2.

Content availability for previous versions of qualifications:

Participant Handbook Facilitator Guide Digital Content Qualification Handbook Any Other:

Languages in which Content is available:

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/N0604: Operating Sewage Treatment Plant (STP)	<i>Prepare for sewage treatment</i>	10	20	-	3
	PC1. able to start the plant by switching on pump, mixer, controllers and other equipment.	-	-	-	-
	PC2. perform the manual work in sewage treatment plant	-	-	-	-
	PC3. able to check, open or close the valves	-	-	-	-
	PC4. perform the operations at outflow & inflow of the plant by controlling the discharge.	-	-	-	-
	PC5. able to collect the samples and facilitate the calibrations of samples.	-	-	-	-
	<i>Carry out operations in STP</i>	20	40	-	7
	PC6. monitor and perform various operations in sewage treatment plant.	-	-	-	-
	PC7. perform the mixing of chemicals if required.	-	-	-	-
	PC8. handle the sludge properly that is being accumulated properly.	-	-	-	-
	PC9. perform the operations involved in purification of gas in scrubber unit evolved from sludge digesters.	-	-	-	-
	PC10. complete the documentation work as required.	-	-	-	-
	PC11. able to check and clean the bar screen at frequent intervals	-	-	-	-
	PC12. able to ensure no large gaps are formed due to corrosion of the screen	-	-	-	-
	PC13. able to ensure no large gaps are formed due to corrosion of the screen	-	-	-	-
	PC14. able to ensure that the air flow/ mixing is uniform over the entire floor of the tank.	-	-	-	-
	PC15. able to adjust the placement of diffusers and the air-flow rate as needed.	-	-	-	-
	PC16. able to manually evacuate settled muck/ sediments at least once in a year	-	-	-	-
	PC17. able to check oil in the pump every day; top up if necessary	-	-	-	-
	PC18. able to check motor-to-pump alignment after every dismantling operation	-	-	-	-
	PC19. identify the condition of coupling and replace damaged parts immediately	-	-	-	-
	PC20. identify the vibrations and tighten the anchor bolts and other fasteners	-	-	-	-
PC21. check condition of bearings, oil seals, mechanical seal and replace if necessary	-	-	-	-	
PC22. able to follow the manufacturer's O&M manual with diligence.	-	-	-	-	

	Total Marks	30	60	-	10
PSC/N0601: Monitoring and Managing Sewage Treatment Plant	<i>Monitoring the STP</i>	15	30	-	5
	PC1. able to monitor the ph, coagulation and flocculation, velocity of flow, discharge at inflow & outflow.	-	-	-	-
	PC2. monitoring weather the biological process is being carried out as per the standards.	-	-	-	-
	PC3. identify the mechanical instruments such as blowers, pumps, centrifugal separators, valves, aerators, etc are working properly	-	-	-	-
	PC4. able to monitor the accumulation of sludge and pressure and temperature of digesters during evolution of gases while sludge digestion as per standards.	-	-	-	-
	PC5. identify all the units in sewage treatment plant are in working condition.	-	-	-	-
	PC6. able to monitor and record all meter and gauge readings.	-	-	-	-
	<i>Managing the STP</i>	15	30	-	5
	PC7. able to identify that the screens are not clogged	-	-	-	-
	PC8. identify any kind of leakage at joint of the screen and water channel.	-	-	-	-
	PC9. able to examine the equalization tank that it should not overflow or leaking, mixing & aeration system.	-	-	-	-
	PC10. able to identify the improper working of aeration system, mixing, leakage at any point, etc...,	-	-	-	-
	PC11. able to prepare and maintain the record of operation carried out by sewage treatment plant.	-	-	-	-
	PC12. able to fill out the daily activity log sheets.	-	-	-	-
	PC13. able to monitor the quality of water at the different units of the plants.	-	-	-	-
	Total Marks	30	60	-	10
PSC/N0606: Solid Waste Management	<i>Prepare for disposal for waste</i>	10	20	-	3
	PC1. identification of probable sites for operating them as waste processing-cum-disposal sites.	-	-	-	-
	PC2. able to identify the sites based on rapid EIA	-	-	-	-
	PC3. able to follow the criteria stipulated in the rules.	-	-	-	-
	PC4. identify the method for the proper disposal of waste or sludge generated in plant according to the generation of waste.	-	-	-	-
	<i>Disposal of solid waste</i>	20	40	-	7
	PC6. identify the ways of effective segregation of solid waste into different categories.	-	-	-	-
	PC7. able to handle and store solid waste to prevent contamination and odors properly	-	-	-	-
	PC8. identify efficient transportation of solid waste to disposal facilities.	-	-	-	-
	PC9. able to minimize the solid waste generation through waste reduction and recycling initiatives.	-	-	-	-

	PC10. able to implement the safe and secure storage areas for temporary waste storage.	-	-	-	-
	PC11. able to carry out adequate monitoring and control of waste disposal operations.	-	-	-	-
	PC12. able regular inspection and maintenance of disposal facilities to ensure functionality and safety.	-	-	-	-
	PC13. able to implement the measures to prevent the release of hazardous substances from solid waste.	-	-	-	-
	PC14. Able to perform the best practices for landfill management, including liner installation and leachate collection systems.	-	-	-	-
	PC15. compliance with occupational health and safety guidelines during waste disposal activities.	-	-	-	-
	PC16. able to do regular evaluation and improvement of solid waste disposal processes and practices.	-	-	-	-
	PC17. integration of sustainable waste management techniques, such as composting or anaerobic digestion.	-	-	-	-
	Total Marks	30	60	-	10
	<i>Understand how to maintain records and data</i>	<i>10</i>	<i>20</i>	<i>-</i>	<i>3</i>
	PC1. able to read plan & specifications for different types of modifications in sewage treatment plant	-	-	-	-
	PC2. able to document data on pathogen reduction.	-	-	-	-
	PC3. able to record the data on sludge accumulated and sludge treated.	-	-	-	-
	PC4. able to maintain daily operational log.	-	-	-	-
	PC5. perform routine operational duties, flow meter readings, sample information with corresponding analytical data, etc.	-	-	-	-
	PC6. able to identify unusual conditions at the site	-	-	-	-
	PC7. identify and report accident equipment hazard.	-	-	-	-
	PC8. perform preventive maintenance	-	-	-	-
	<i>Reporting to the higher officials</i>	<i>10</i>	<i>20</i>	<i>-</i>	<i>4</i>
	PC9. reporting to the supervisor if any kind of problem occurs	-	-	-	-
	PC10. identify spare parts inventory when in need	-	-	-	-
	PC11. identify specifications on equipment from supplier	-	-	-	-
	PC12. equipment inventory	-	-	-	-
	<i>Respond to higher officials</i>	<i>10</i>	<i>20</i>	<i>-</i>	<i>3</i>
	PC13. able to responding promptly to higher officials' inquiries or requests demonstrates a sense of urgency and professionalism	-	-	-	-
	PC14. able to provide clear and accurate information in responses to higher officials ensures effective communication and minimizes misunderstandings.	-	-	-	-
PSC/N0603: Maintain Records & Reporting at Site					

	PC15. able to ensure that responses align with relevant policies, procedures, and regulations demonstrates a commitment to adhering to organizational guidelines.	-	-	-	-
	PC16. able to maintain respectful and courteous tone in responses conveys professionalism and enhances the organization's reputation.	-	-	-	-
	PC17. identify potential solutions or recommendations in responses demonstrates proactive thinking and a commitment to finding effective resolutions.	-	-	-	-
	PC18. able to follow up on requests or inquiries to higher officials and providing updates or additional information as needed helps to maintain effective communication and ensure that all concerns are addressed satisfactorily.	-	-	-	-
	Total Marks	30	60	-	10
PSC/N0602: Health and Safety Practices at the treatment Plant	<i>Maintaining health at treatment plant</i>	15	30	-	5
	PC1. identify the hazards associated with different tasks in a wastewater treatment plant.	-	-	-	-
	PC2. able to understand and acquire know-how of safety measures to be taken when in project site.	-	-	-	-
	PC3. identify general risks, including working at height and hazards associated with different tasks in a sewage treatment plant.	-	-	-	-
	PC4. understand and acquire know-how of safety measures when handling mechanical parts in statutory or moving position.	-	-	-	-
	PC5. perform the changing of chlorine cylinders safely.	-	-	-	-
	PC6. perform the automatic and manual functions at scrubber unit safely as per instructions.	-	-	-	-
	<i>Safe work practices at treatment facilities</i>	15	30	-	5
	PC7. inform the higher authorities of the accident or hazard that has occurred.	-	-	-	-
	PC8. select the right personal protective equipment for different tasks in a waste treatment plant.	-	-	-	-
	PC9. ensure safe storage of corrosive substances	-	-	-	-
	PC10. follow recommended personal hygiene and sanitation practices, for example, washing/sanitizing hands, covering face	-	-	-	-
	PC11. able to clean and disinfect work area, materials/supplies, equipment etc.. before and after use.	-	-	-	-
	PC12. able to identify hygiene and sanitation issues.	-	-	-	-
Total Marks	30	60	-	10	
DGT/VSQ/N0101: Employability Skills (30 Hours)	<i>Introduction to Employability Skills</i>	1	1	-	-
	PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
	<i>Constitutional values – Citizenship</i>	1	1	-	-
	PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
	<i>Becoming a Professional in the 21st Century</i>	1	3	-	-

PC3. explain 21st Century Skills such as Self- Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
<i>Essential Digital Skills</i>	4	6	-	-
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	1	3	-	-
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-

	Total Marks	20	30	-	-
Grand Total		170	330		50

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

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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