QUALIFICATION FILE

Industrial Wastewater 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

<table>
<tr><td>1.</td><td>Qualification Name</td><td colspan="2">Industrial Wastewater Treatment Plant Operator</td></tr>
<tr><td>2.</td><td>Sector/s</td><td colspan="2">Water Management and Plumbing</td></tr>
<tr><td>3.</td><td>Type of Qualification: ☒ New ☐ Revised ☐ Has Electives/Options ☐OEM</td><td>NQR Code & version of existing/previous qualification:</td><td>Qualification Name of existing/previous version:
Effluent Treatment Plant Operator</td></tr>
<tr><td>4.</td><td>a. OEM Name
b. Qualification Name
(Wherever applicable)</td><td colspan="2"></td></tr>
<tr><td>5.</td><td>National Qualification Register (NQR) Code &Version
(Will be issued after NSQC approval)</td><td>QG-04-WS-02939-2024-V1-WMPS
Version – 1.0</td><td>6. NCrF/NSQF Level: 4</td></tr>
<tr><td>7.</td><td>Award (Certificate/Diploma/Advance Diploma/ Any Other (Wherever applicable specify multiple entry/exits also & provide details in annexure)</td><td colspan="2">Certificate</td></tr>
<tr><td>8.</td><td>Brief Description of the Qualification</td><td colspan="2">Industrial Wastewater Treatment Plant Operator responsible for operating and maintaining effluent treatment systems, monitoring water quality parameters, conducting routine tests, adjusting chemical dosages, troubleshooting equipment issues, and ensuring compliance with environmental regulations.</td></tr>
<tr><td>9.</td><td>Eligibility Criteria for Entry for Student/Trainee/Learner/Employee</td><td colspan="2">a. Entry Qualification & Relevant Experience:
<table>
<tr><th>S. No.</th><th>Academic/Skill Qualification (with Specialization - if applicable)</th><th>Required Experience (with Specialization - if applicable)</th></tr>
<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>
</table>
b. Age: 18 Years</td></tr>
<tr><td>10.</td><td>Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrF))</td><td>15</td><td>11. Common Cost Norm Category (I/II/III) (wherever applicable): I</td></tr>
</table>

<table>
<tr><td>12.</td><td>Any Licensing requirements for Undertaking Training on This Qualification (wherever applicable)</td><td>NA</td></tr>
<tr><td>13.</td><td>Training Duration by Modes of Training Delivery (Specify Total Duration as per selected training delivery modes and as per requirement of the qualification)</td><td>☒Offline ☐Online ☐Blended
<table>
<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>
<tr><td>Classroom (offline)</td><td>150</td><td>240</td><td>60</td><td></td><td>450</td></tr>
<tr><td>Online</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
(Refer Blended Learning Annexure for details)</td></tr>
<tr><td>14.</td><td>Aligned to NCO/ISCO Code/s (if no code is available mention the same)</td><td>NCO-2015/3132.0400</td></tr>
<tr><td>15.</td><td>Progression path after attaining the qualification (Please show Professional and Academic progression)</td><td>Industrial Wastewater Treatment Plant Operator → Plant Supervisor (L5)</td></tr>
<tr><td>16.</td><td>Other Indian languages in which the Qualification & Model Curriculum are being submitted</td><td>Hindi</td></tr>
<tr><td>17.</td><td>Is similar Qualification(s) available on NQR-if yes, justification for this qualification</td><td>☐ Yes ☒ No URLs of similar Qualifications:</td></tr>
<tr><td>18.</td><td>Is the Job Role Amenable to Persons with Disability</td><td>☒ Yes ☐ No
If “Yes”, specify applicable type of Disability: Deaf, Hard of Hearing, Speech and Language disability</td></tr>
<tr><td>19.</td><td>How Participation of Women will be Encouraged</td><td>Encouraging the participation of women in the role of Industrial Wastewater 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 IWTPs. 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 IWTP operator role and the opportunities it offers.

Role Models: Highlight success stories of women IWTP 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.</td></tr>
</table>

		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 IWTP operator roles.	
20.	**Are Greening/ Environment Sustainability Aspects Covered** *(Specify the NOS/Module which covers it)*	☒ **Yes** ☐ **No** **(Covered in DGT/VSQ/N0101)**	
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 Lead AB & Supporting ABs)*	**Name: Himanshu Singh** **Email: standards@wmpsc.in** **Contact No.: +917906577202** **Website: www.wmpsc.in**	
23.	**Final Approval Date by NSQC:** *27-08-2024*	**24. Validity Duration: 3 years**	**25. Next Review Date:** *27-08-2024*

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 Effluent Treatment Plant (ETP)	PSC/N0170, v1.0	Core	4	4	40	60	20	-	120	30	60	-	10	100	25
2.	Monitoring and managing Effluent Treatment Plant	PSC/N0171, v1.0	Core	4	4	30	70	20	-	120	30	60	-	10	100	20
3.	Analysis of Effluent	PSC/N0172, v1.0	Core	4	3.5	25	60	20	-	105	30	60	-	10	100	25
4.	Maintain Records & Reporting at Site	PSC/N0603, v1.0	Non-Core	4	2	20	40	-	-	60	30	60	-	10	100	15
5.	Health and Safety Practices at the Treatment Plant	PSC/N0602, v1.0	Non-Core	4	0.5	5	10	-	-	15	30	60	-	10	100	5
6.	Employability Skills (30 Hours)	DGT/VSQ/N010, v1.0	Non-Core	2	1	30	-	-	-	30	20	30	-	-	50	10
Duration (in Hours) / Total Marks					**15**	**150**	**240**	**60**		**450**	**170**	**330**			**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 Environmental Science/ Water Management with 4 years of relevant experience
3.	**Tools and Equipment Required for Training**	☒Yes ☐No (*If "Yes", details to be provided in Annexure)*
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 12th 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 year 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** *(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):** Yes
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 *(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	• Process of operating effluent treatment plant (ETP) • Process of monitoring and managing Effluent Treatment Plant • Process of analyzing effluent • Process of maintaining records & reporting at site • Process of implementing health and safety practices at the treatment plant	Industrial Wastewater Treatment Plant Operator during the job works in familiar, predictable, routine, situation of clear choice.	4
Professional and Technical Skills/ Expertise/ Professional Knowledge	• Knowledge of various operations in effluent treatment. • Understanding the process flow of effluent treatment within the plant. • Knowledge of mechanical equipment used in effluent treatment plants (ETP). • Know how to read meter and gauge readings in an ETP setting. • Knowledge of chemical handling protocols in effluent treatment processes. • Understand the types of filters used in effluent treatment plants (ETP). • Knowledge of different methods for handling sludge generated in treatment processes. • Know how to analyze data from graphs, meters, and gauge readings. • Ability to react calmly in different situations. • Understanding standard operating procedures for carrying out tests.	The Industrial Wastewater Treatment Plant Operator should possess the professional and technical skills of his field.	4
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	• Starting the plant and operating equipment like pumps, mixers, and controllers. • Managing valves and ensuring proper flow control within the plant. • Collecting samples, conducting sample calibrations, and documenting results. • Removing large solids and organic matter to prevent equipment damage.	Industrial Wastewater Treatment Plant Operator should have practical skills which are routine and repetitive and should use quality concepts.	4

	• Performing bio-treatment processes using different systems like CASP and IFAS. • Completing documentation accurately and efficiently. • Calculating sludge volume and density indices for process optimization. • Conducting chemical tests such as COD, BOD, and TSS analysis. • Safely handling and disposing of chemicals according to guidelines. • Monitoring wastewater flow rates and quality parameters regularly. • Responding promptly and professionally to inquiries and requests from supervisors.		
Broad Learning Outcomes/Core Skill	• Operational Skills: Gain expertise in operating and maintaining treatment systems efficiently. • Technical Knowledge: Learn treatment processes, chemical usage, and equipment handling. • Safety and Compliance: Understand and implement safety measures and environmental regulations. • Problem-Solving Abilities: Develop skills to troubleshoot equipment issues and optimize processes. • Documentation and Reporting: Master record-keeping and reporting for operational activities. • Communication and Teamwork: Improve communication to collaborate effectively with colleagues and supervisors.	Industrial Wastewater Treatment Plant Operator should have strong skills in treatment processes, chemical handling, and equipment operation. They prioritize safety and compliance with environmental regulations while troubleshooting and optimizing plant processes. Operators excel in documentation, maintaining accurate records of activities and test results. Effective communication and teamwork are essential for collaborating with colleagues and supervisors to ensure smooth and safe plant operations.	4
Responsibility	**Responsibility for own work and Learning.** • Prepare for effluent treatment • Carry out operations in ETP • Monitoring the ETP • Managing the ETP • Troubleshooting the problems in ETP • Identify the commonly used chemicals • Perform chemical tests according to procedures • Precautions during testing • Maintain records and data • Preparation of report • Respond to higher officials	Industrial Wastewater Treatment Plant Operator should know to take responsibility of own work and learning.	4

	• Health maintenance at treatment plant • Safe work practices at treatment plant		

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
13.	Safety Shoe	Pairs	4
14.	Safety Belt	Nos	4
15.	Safety Glass	Nos	4
16.	Safety Gloves (Rubber)	Pairs	4
17.	Safety Gloves (Cotton and Anti Cut)	Pairs	4
18.	Safety Gloves (Heat Resistant)	Pairs	4
19.	Ear Plug	Nos	4
20.	Helmet	Nos	4
21.	Notepad	Nos	30
22.	Pen	Nos	30
23.	Pencil	Nos	30
24.	Eraser	Nos	30
25.	Sharpener	Nos	30
26.	White Board / Black Board	Nos	2
27.	White Board Marker / Chalk (Blue)	Nos	2
28.	White Board Marker / Chalk (Black)	Nos	2
29.	White Board Marker / Chalk (Red)	Nos	2
30.	Black Board Chalk (White)	Nos	2
31.	White Board / Black Board Duster	Nos	1
32.	Cotton Clothes	Meter	1
33.	Pump	Nos	2
34.	Mixer	Nos	2
35.	Controllers	Nos	1
36.	Valves	Nos	30
37.	Sampling Equipment	Nos	30
38.	Calibration Equipment	Nos	1
39.	pH Meter	Nos	3
40.	Turbidity Meter	Nos	3
41.	Flow Meter	Nos	3
42.	Mixing Tanks	Nos	2
43.	Aeration Systems	Nos	2
44.	Settling Tanks	Nos	2
45.	Filter Press	Nos	1
46.	Chemical Dosing System	Nos	2

47.	Screens or Filters	Nos	1
48.	Clarifiers	Nos	2
49.	UV Sterilizers	Nos	2
50.	Sludge Dewatering Equipment	Nos	2
51.	Laboratory Equipment	Nos	1
52.	Dissolved Oxygen Meter	Nos	1
53.	Conductivity Meter	Nos	1
54.	Chemical Analysis Kits	Nos	1
55.	Spectrophotometer	Nos	2
56.	Data Logging Devices	Nos	2
57.	Inspection Mirror	Nos	1
58.	Flashlight	Nos	1
59.	Level Gauge	Nos	1
60.	Sludge Sampler	Nos	1
61.	Scraper or Rake	Nos	1
62.	Vacuum Truck Or Pump	Nos	1
63.	High-Pressure Washer	Nos	1
64.	Thermometer	Nos	1
65.	Pressure Gauge	Nos	1
66.	Stopwatch or Timer	Nos	1
67.	Agitators	Nos	2
68.	Disinfection Chambers	Nos	2
69.	Ion Exchange Resin Columns	Nos	2
70.	Algicide Dosing Systems	Nos	2
71.	Taste and Odor Control Equipment	Nos	2
72.	Dechlorination Systems	Nos	2
73.	Bleach Dosing Equipment	Nos	2
74.	Colorimeter	Nos	1
75.	Microscope	Nos	1
76.	BOD Incubator	Nos	1
77.	Autoclave	Nos	1
78.	Stirrer	Nos	1
79.	Pipettes	Nos	1
80.	Burettes	Nos	1
81.	Beakers	Nos	1
82.	Flasks	Nos	1
83.	Test Tubes	Nos	1
84.	Filter Paper	Nos	1
85.	COD Reflux Apparatus	Nos	1
86.	Winkler Titration Apparatus	Nos	1
87.	Jar Testing Apparatus	Nos	1
88.	Centrifuge	Nos	1
89.	Balance	Nos	1

90.	Heating Mantle	Nos	1
91.	Fume Hood	Nos	1
92.	Emergency Eyewash	Nos	1
93.	Safety Shower	Nos	1
94.	Chemical Spill Kit	Nos	1
95.	Waste Disposal Containers	Nos	1
96.	Labels	Packet	1
97.	Personal protective equipment	Set	30
98.	Plumbing Tools and Materials	Set	1
99.	Power Tools	Set	1
100.	Required Machinery	Set	1
101.	Fire Extinguisher	Number	1
102.	First Aid Kit	Number	1
103.	Safety Boots	Pair	30
104.	Safety goggles	Nos	30
105.	Respirators or Masks	Nos	30
106.	Fire Extinguishers	Nos	2
107.	Safety Signs and Labels	Nos	2
108.	Safety Gloves	Pair	30
109.	ETP plant prototype	Nos	1
110.	AR/VR Module – Not Mandatory	Nos	1

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 Firefighting Design	Gurgaon	7015342916	gaurav11411@gmail.com	
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/N0170: Operating Effluent Treatment Plant (ETP)	*Prepare for Effluent treatment*	*7*	*14*	*-*	*2*
	PC1. Start the plant by switching on the pump, mixer, controllers, and other equipment.	-	-	-	-
	PC2. Perform the manual work in the effluent treatment plant.	-	-	-	-
	PC3. Check, open, or close the valves.	-	-	-	-
	PC4. Perform the operations at outflow & inflow of the plant by controlling the discharge.	-	-	-	-
	PC5. Collect the samples and facilitate the calibrations of samples.	-	-	-	-
	Carry out operations in ETP	*15*	*30*	*-*	*5*
	PC6. Removal of large solids such as rags, sticks, grit, and grease that may damage equipment.	-	-	-	-
	PC7. Removal of floating and settled materials such as suspended solids and organic matter.	-	-	-	-
	PC8. Removal of biodegradable organic matter and suspended solids.	-	-	-	-
	PC9. Perform the Aerobic biological treatment technologies.	-	-	-	-
	PC10. Perform biotreatment process by Conventional Activated Sludge Process (CASP).	-	-	-	-
	PC11. Can carry out another biotreatment process by Cyclic Activated Sludge System (CASS).	-	-	-	-
	PC12. Familiar with how to carry out Integrated Fixed Film Activated Sludge (IFAS) system.	-	-	-	-
	PC13. Knowledge of the process of Membrane Bioreactor (MBR) for biological degradation.	-	-	-	-
	PC14. Removal of residual suspended solids/dissolved solids.	-	-	-	-

	PC15. Complete the documentation work as required.	-	-	-	-
	Operational control Strategies	*8*	*16*	*-*	*3*
	PC16. Removal of wastewater by mixed liquor suspended solids process.	-	-	-	-
	PC17. Calculation of Sludge volume index and sludge density index.	-	-	-	-
	PC18. Sludge age: Mean Cell Residence Time (MCRT).	-	-	-	-
	PC19. Able to calculate the Food/Mass Ratio.	-	-	-	-
	PC20. Able to calculate Constant MLSS.	-	-	-	-
	PC21. Perform Return Activated Sludge Control (RAS).	-	-	-	-
	Total Marks	**30**	**60**	**-**	**10**
PSC/N0171: Monitoring and managing Effluent Treatment Plant	*Monitoring the ETP*	*10*	*20*	*-*	*3*
	PC1. Monitor the working of mechanical equipment of ETP	-	-	-	-
	PC2. proper check of mechanical instruments such as blowers, pumps, centrifugal separators, valves, etc	-	-	-	-
	PC3. Monitor the physical quality of water at the intermediate of treatment and at outflow of the plant.	-	-	-	-
	PC4. Monitor weather the secondary treatment is carried out as per the standards.	-	-	-	-
	PC5. Proper check the meter and gauge readings in the plant.	-	-	-	-
	PC6. Proper check the working of all the treatment units that carries out treatment.	-	-	-	-
	PC7. Evaluate the performance of biological treatment processes, such as activated sludge, biofilters, or lagoons	-	-	-	-
	PC8. Monitor the biomass concentration, sludge age, and microbial activity to ensure proper treatment. Adjust aeration and nutrient dosing if required.	-	-	-	-
	Managing the ETP	*10*	*20*	*-*	*4*
	PC9. Measure and monitor the flow rates of wastewater and treatment chemicals throughout the system	-	-	-	-
	PC10. Regularly test the influent and effluent water to assess its quality and identify any deviations from the required standards	-	-	-	-
	PC11. Clean or repair these components to maintain proper sedimentation and clarification processes.	-	-	-	-
	PC12. Check the condition of filters, such as sand filters, activated carbon filters, or membrane filters	-	-	-	-
	PC13. Monitor sludge quality, volume, and disposal practices according to regulatory requirements.	-	-	-	-
	Troubleshooting the problems in ETP	*10*	*20*	*-*	*3*
	PC14. Check all physical components, such as pumps, valves, pipes, and filters, for any signs of damage, leaks, or blockages.	-	-	-	-
	PC15. Repair or replace faulty components as necessary.	-	-	-	-

	PC16. Examine settling tanks and clarifiers for sludge accumulation, improper sludge blanket levels, or mechanical issues	-	-	-	-
	PC17. Clean or repair these components to maintain proper sedimentation and clarification processes.	-	-	-	-
	PC18. Verify that all operating parameters, such as temperature, pressure, pH, and retention times, are within the recommended ranges and if not than take standard measures	-	-	-	-
	Total Marks	**30**	**60**	**-**	**10**
PSC/N0172: Analysis of Effluent	*Identify the commonly used chemicals*	*8*	*16*	*-*	*2*
	PC1. Familiar with the chemicals used in Coagulation and flocculation like acrylamide copolymers, aluminium chloride, aluminium sulphate, etc…	-	-	-	-
	PC2. An individual should be aware of chemicals used in pH adjustment like calcium carbonate, calcium hydroxide, calcium oxide, carbon dioxide, etc.	-	-	-	-
	PC3. Chemicals used in disinfection and oxidation products such as anhydrous ammonia, ammonium hydroxide, calcium hypochlorite, etc.	-	-	-	-
	PC4. Different chemicals used in softening, Algicide, Taste and odour control, Dechlorinate and antioxidant, Bleaches, etc.	-	-	-	-
	PC5. And individual should know the use and applications with some other major chemicals like Ferric alum or Ammonium iron (III) sulphate, Lime (calcium oxide), Polyelectrolyte (flocculant) and De-chlorinator	-	-	-	-
	Perform chemical tests according to procedures	*15*	*30*	*-*	*4*
	PC6. Able to perform Chemical Oxygen Demand (COD)	-	-	-	-
	PC7. Analyse Microbial test	-	-	-	-
	PC8. An individual must be able to carry out Dissolved Oxygen Test (Winkler Method)	-	-	-	-
	PC9. An individual should be able to carry out Biochemical Oxygen Demand (BOD)	-	-	-	-
	PC10. An individual should be able to carry out Total Suspended Solids (TSS)	-	-	-	-
	PC11. An individual should be able to carry out Total Dissolved Solids (TDS)	-	-	-	-
	PC12. An individual should be able to carry out Oil & Grease Content	-	-	-	-
	PC13. An individual should be able to carry out Jar Testing	-	-	-	-
	PC14. An individual should be able to carry out other relevant tests	-	-	-	-
	Precautions during testing	*7*	*14*	*-*	*4*
	PC15. Make sure that all chemicals in the laboratory have proper labels.	-	-	-	-
	PC16. Perform the use of chemicals, gases, or reagents with labels.	-	-	-	-
	PC17. Perform the mixing of chemicals or reagents with the information at hand about their reactivity.	-	-	-	-
	PC18. Individual should be familiar with proper Personal Protective Equipment (PPE) for handling chemicals in the laboratory.	-	-	-	-

	PC19. Ensure that the individual should hold only updated MSDS.	-	-	-	-
	PC20. Make sure chemical emergency equipment such as an eye washer and a safety shower are available	-	-	-	-
	PC21. Perform the proper disposal of used chemicals or reagents in the different container as per the guidelines.	-	-	-	-
	PC22. An individual should avoid storing chemicals over his/her requirement in the laboratory as per SOP.	-	-	-	-
	PC23. An individual should avoid chemicals from heat source or direct sunshine.	-	-	-	-
	Total Marks	**30**	**60**	**-**	**10**
PSC/N0603: Maintain Records & Reporting at Site	*Understand how to maintain records and data*	*10*	*20*	*-*	*3*
	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	-	-	-	-
	Reporting to the higher officials	*10*	*20*	*-*	*4*
	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	-	-	-	-
	Respond to higher officials	*10*	*20*	*-*	*3*
	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.	-	-	-	-
	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	*Maintaining health at treatment plant*	*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.	-	-	-	-
	Safe work practices at treatment facilities	*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**	**70**	**-**	**-**
DGT/VSQ/N0101: Employability Skills (30 Hours)	*Introduction to Employability Skills*	*1*	*1*	*-*	*-*
	PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
	Constitutional values – Citizenship	*1*	*1*	*-*	*-*
	PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
	Becoming a Professional in the 21st Century	*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.	-	-	-	-
	Basic English Skills	*2*	*3*	*-*	*-*
	PC4. speak with others using some basic English phrases or sentences	-	-	-	-

	Communication Skills	*1*	*1*	*-*	*-*
	PC5. follow good manners while communicating with others	-	-	-	-
	PC6. work with others in a team	-	-	-	-
	Diversity & Inclusion	*1*	*1*	*-*	*-*
	PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
	PC8. report any issues related to sexual harassment	-	-	-	-
	Financial and Legal Literacy	*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	-	-	-	-
	Essential Digital Skills	*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	-	-	-	-
	Entrepreneurship	*3*	*5*	*-*	*-*
	PC14. identify and assess opportunities for potential business	-	-	-	-
	PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
	Customer Service	*2*	*2*	*-*	*-*
	PC16. identify different types of customers	-	-	-	-
	PC17. identify customer needs and address them appropriately	-	-	-	-
	PC18. follow appropriate hygiene and grooming standards	-	-	-	-
	Getting ready for apprenticeship & Jobs	*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

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