

Model Curriculum

Wastewater Treatment Plant Technician

SECTOR: GREEN JOBS
SUB-SECTOR: WATER MANAGEMENT
OCCUPATION: OPERATION & MAINTENANCE
REF ID: SGJ/Q66o1, V1.0
NSQF LEVEL: 4



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

SKILL COUNCIL FOR GREEN JOBS

for the

MODEL CURRICULUM

Complying to National Occupational Standards of

Job Role/Qualification Pack: '**Wastewater Treatment Plant Technician**' QP No. '**SGJ/Q 6601 NSQF Level 4**'

Date of Issuance: December 10th, 2015

Valid up to: December 1st, 2018

* Valid up to the next review date of the Qualification Pack


Authorised Signatory
(Skill Council for Green Jobs)

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Wastewater Treatment Plant Technician

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Wastewater Treatment Plant Technician”, in the “Green Jobs” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Wastewater Treatment Plant Technician		
Qualification Pack Name & Reference ID. ID	SGJ/Q6601, v1.0		
Version No.	1.0	Version Update Date	20 th September 2016
Pre-requisites to Training	12 th Pass, 10 th Pass +ITI/Diploma, 8 th Pass + 4 Years' experience as wastewater treatment plant helper		
Training Outcomes	After completing this programme, participants will be able to: <ul style="list-style-type: none">• Operate Wastewater Treatment Plant• Monitor and Maintain Wastewater Treatment Plant• Maintain work safety at Wastewater Treatment Plant		

This course encompasses 3 out of 3 National Occupational Standards (NOS) of “Wastewater Treatment Plant Technician” Qualification Pack issued by “Skill Council for Green Jobs”.

S. No	Module	Key Learning Outcomes	Equipment Required
1	Wastewater Treatment Plant Industry Theory Duration (hh:mm) 08:00 Practical Duration (hh:mm) 08:00 Corresponding NOS Code SGJ/N6601	<ul style="list-style-type: none"> Explain what is wastewater and general concepts of effluent disposal, recycle and re-use of treated wastewater Understand the importance of Wastewater treatment, know-how about the industry and career prospects Understand basic skills required to perform the job of Wastewater Treatment Plant Technician Explain basic terminology used in the wastewater industry Explain broadly the stages of treatment, along with flow diagram, schematic and layout of wastewater treatment plant 	On the job training in a wastewater treatment plant
2	Types of Wastewater and its Treatment Theory Duration (hh:mm) 08:00 Practical Duration (hh:mm) 08:00 Corresponding NOS Code SGJ/N6601	<ul style="list-style-type: none"> Acquire knowledge about the different sources of wastewater generation Describe the different types of wastewater that undergoes treatment Explain the environmental effects of untreated wastewater Explain the significance and benefits of wastewater treatment 	On the job training in a wastewater treatment plant
3	Wastewater Treatment Plant and its Components Theory Duration (hh:mm) 06:00 Practical Duration (hh:mm) 12:00 Corresponding NOS Code SGJ/N6601	<ul style="list-style-type: none"> Acquire know-how about types of wastewater treatment plants Differentiate between the uses of various treatment plants including ETP, STP and CETP. Describe the functions of various components of wastewater treatment plant 	On the job training in a wastewater treatment plant
4.	Wastewater Treatment Process Theory Duration (hh:mm)	<ul style="list-style-type: none"> Identify various stages associated with treatment of wastewater treatment, including primary, secondary, and tertiary levels. 	On the job training in a wastewater treatment plant

	12:00 Practical Duration (hh:mm) 24:00 Corresponding NOS Code SGJ/N66o1	<ul style="list-style-type: none"> Describe in details the objective of the different levels of treatment of wastewater Identify the various components and their purpose as a part of the stages of wastewater treatment process Explain the concepts of advanced treatment, disinfection and effluent storage 	
5	Operate Wastewater Treatment Plant Theory Duration (hh:mm) 12:00 Practical Duration (hh:mm) 24:00 Corresponding NOS Code SGJ/N66o1, SGJ/N66o2	<ul style="list-style-type: none"> Acquire know how of all units of operation of Wastewater Treatment Plant Explain functions of different components Identify and differentiate between the types of filters associated with the wastewater treatment plant. 	On the job training in a wastewater treatment plant
6.	Monitoring and Maintenance of Wastewater Treatment Plant Theory Duration (hh:mm) 12:00 Practical Duration (hh:mm) 30:00 Corresponding NOS Code SGJ/N66o2	<ul style="list-style-type: none"> Explain the importance of monitoring and maintenance Explain structure of a Maintenance Program (General Guidelines, Components of Maintenance) Carry out the Implementation of a Maintenance Plan as per established typical Maintenance Procedures Working principle of different machineries electrical units Classification of different types of filters/ equipment and how they are serviced Rectify the problem on time with minimal interruption or hindrance in plant's operation Inspect plant for hygiene, housekeeping and 5 s Anticipate possible malfunction of equipment, its after effects, and apply know-how of preventive and corrective measures Re-commission the plant after preventive/ force shut down shut down Maintain service records of electro mechanical equipment and the plant diagnose faults/ trouble in the equipment's operation and take immediate actions Perform preventive maintenance on valves, filters, pumps, tanks and aerators and other equipments of wastewater treatment plant 	On the job training in a wastewater treatment plant

		<ul style="list-style-type: none"> Perform general plant maintenance Understand equipment specification and requirement by the original equipment manufacturer 	
7	<p>Work Safety at Wastewater Treatment Plant</p> <p>Theory Duration (hh:mm) 12:00</p> <p>Practical Duration (hh:mm) 24:00</p> <p>Corresponding NOS Code SGJ/N6605</p>	<ul style="list-style-type: none"> Identify the personal protective equipment used for the specific purpose Understand and acquire know-how of Safety Measures to be taken when in project site Identify general risks, including working at height and hazards associated with different tasks in a Wastewater Treatment Plant Understand and acquire know-how of Safety Measures when handling Mechanical Parts in statutory or moving position Understand and acquire know-how of Safety procedure while handling Chemical and Organic Matter Identify the Do's and Don'ts for safe work area Administer first aid 	On the job training in a wastewater treatment plant
	<p>Theory Duration (hh:mm) 70:00</p> <p>Practical Duration (hh:mm) 130:00</p>	On the job training in a wastewater treatment plant	

Grand Total Course Duration: 200 **Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by [Skill Council for Green Jobs](#))

Trainer Prerequisites for Job role: "Wastewater Treatment Plant Technician" mapped to Qualification Pack: "SGJ/Q6601, v1.0"

Sr. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack "SGJ/Q6601, Version 1.0".
2	Personal Attributes	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field.
3	Minimum Educational Qualifications	ITI /Diploma or B.Tech or The education qualification can be relaxed in case of extraordinary relevant field experience.
4a	Domain Certification	Certified for Job Role: "Wastewater Treatment Plant Technician" mapped to QP: "SGJ/Q6601, Version 1.0". Minimum accepted score as per respective SSC guidelines. Minimum accepted score as per SCGJ is 80%.
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: "Trainer", mapped to the Qualification Pack: "SSC/1402". Minimum accepted score as per SCGJ is 70%.
5	Experience	<ul style="list-style-type: none"> • Minimum 3 years of relevant industry experience for ITI /Diploma Or • Minimum 2 years of relevant industry experience for B.Tech

Annexure: Assessment Criteria

Assessment Criteria for Wastewater Treatment Plant Technician	
Job Role	Wastewater Treatment Plant Technician
Qualification Pack	SGJ/Q6601, Version 1.0
Sector Skill Council	Skill Council for Green Jobs

Sr. No.	Guidelines for Assessment
1	Criteria for assessment for Qualification Pack has been created based on the NOSs and performance criteria by SCGJ. Each Performance Criteria (PC) has been assigned marks proportional to its importance within NOS and weightages have also been given among the NOSs accordingly. SCGJ has laid down the proportion of marks for Skills, Theory/Knowledge and Behaviour / Attitudes for each PC.
2	The assessment of the theory/knowledge will be based on written test/viva-voce or both while skill test shall be hands on practical. Behaviour and attitude will be assessed while performing the task.
3	The assessment shall be done as per the assessment sheets devised by SCGJ and accordingly the assessment agencies in consultation with SCGJ will create unique question papers for theory/knowledge and attitude for each candidate at each SCGJ accredited testing centres (as per assessment criteria below)
4	The assessment agencies will conduct the assessment as per the guidelines given by SCGJ having unique evaluations for skill practical for every student at each SCGJ accredited testing centre based on this criteria
5	To pass the Qualification Pack, every trainee should score a minimum of 70% in the overall assessment.
6	The marks are allocated PC wise; however, every NOS will carry a weight age in the total marks allocated to the specific QP

Assessable Outcome (NOS)	Assessment Criteria	Total Marks	Out of	Marks Allocation	
				Theory	Practical
SGJ/N6601 Operate Wastewater Treatment Plant	PC1. Operate the Wastewater Treatment Plant by switching on the pumps, mixers, controllers and other equipment's	35	8	3	5
	PC2. Operate and dump filter press		4	1	3
	PC3. Operate rotary vacuum filter		4	1	3
	PC4. Charge the line slurry tanks		4	1	3
	PC5. Operate oil skimmer and fill drums as required		4	1	3
	PC6. Perform the addition of chemicals and microbes to treat water as required		4	1	3
	PC7. Facilitate the calibration of process control equipment as needed		3	1	2
	PC8. Complete the documentation as required		4	1	3
		Total	35	10	25
SGJ/N6602 Monitor and Maintain Wastewater treatment plant	PC1. Check all equipment's and fill out daily activities log sheet.	65	8	3	5
	PC2. Monitor and repair the working of Wastewater Collection system and record any anomalies		6	2	4
	PC3. Monitor and repair the working of Wastewater Pumping station and record any anomalies		6	2	4
	PC4. Take chemical inventory and record the chemical and water usage daily.		7	3	4

	PC5. Monitor and record all meter and gauge readings		8	2	6
	PC6. Visually inspect the discharge periodically for any anomalies		6	4	2
	PC7. Prepare and maintain the operation records		4	2	2
	PC8. Perform maintenance on filters & tanks.		6	2	4
	PC9. Perform general maintenance and clean-up work area and equipment		6	2	4
	PC10. Assist in developing the estimates for repair, maintenance and construction activities in the Wastewater Treatment Plant		4	2	2
	PC11. Complete the documentation as required		4	2	2
		Total	65	26	39
SGJ/N6605 Work Safety at Wastewater treatment plant	PC1. Identify the hazards associated with different tasks in a Wastewater Treatment Plant	50	12	5	7
	PC2. Inform the concerned person of the accident and hazard occurred		5	2	3
	PC3. Select the right Personal Protective equipment for different tasks in a Waste Treatment Plant		12	5	7
	PC4. Perform the changing of chlorine cylinders safely		8	3	5
	PC5. Ensure safe storage of corrosive substances		8	3	5
	PC6. Ensure Health & Safety by following company policies & processes and industry standards for work safety		5	2	3
		TOTAL	50	20	30