



# Model Curriculum

**QP Name: Effluent Treatment Plant Operator - Food Processing Facility**

**QP Code: FIC/Q9502**

**QP Version: 1.0**

**NSQF Level: 3**

**Model Curriculum Version: 1.0**

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## Training Parameters

<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Utilities and Maintenance
<b>Country</b>	India
<b>NSQF Level</b>	3
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/NIL
<b>Minimum Educational Qualification and Experience</b>	18 years of age 1. Class 10th passed or 2. Class 8th passed and 2 years of experience
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 years
<b>Last Reviewed On</b>	31/05/2021
<b>Next Review Date</b>	31/05/2024
<b>NSQC Approval Date</b>	
<b>QP Version</b>	1.0
<b>Model Curriculum Creation Date</b>	31/05/2021
<b>Model Curriculum Valid Up to Date</b>	31/05/2024
<b>Model Curriculum Version</b>	1.0
<b>Minimum Duration of the Course</b>	280 Hours
<b>Maximum Duration of the Course</b>	280 Hours

## Program Overview

This section summarizes the end objectives of the program along with its duration.

### Training Outcomes

At the end of the program, the participants will be able to:

- Perform various tasks to prepare for operation and maintenance of effluent treatment plant (ETP) at the food processing workplace
- Perform routine tasks for the operation of an ETP
- Apply standard work practices for the maintenance of an ETP
- Apply necessary health and safety practices to ensure food safety and personal hygiene
- Work with various organisational departments effectively
- Use resources at the workplace optimally

### Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
<b>Bridge Module</b>	<b>08:00 Hours</b>	<b>00:00 Hours</b>	<b>00:00 Hours</b>	<b>00:00 Hours</b>	<b>08:00 Hours</b>
Module 1: Introduction to food processing sector and the job of an Effluent Treatment Plant Operator - Food Processing Facility	08:00 Hours	00:00 Hours	00:00 Hours	00:00 Hours	08:00 Hours
<b>FIC/N9504: Operation of Effluent Treatment Plant (ETP) NOS Version No.: 1.0 NSQF Level: 3</b>	<b>32:00 Hours</b>	<b>60:00 Hours</b>	<b>00:00 Hours</b>	<b>00:00 Hours</b>	<b>92:00 Hours</b>
Module 2: Operation of Effluent Treatment Plant (ETP)	32:00 Hours	60:00 Hours	00:00 Hours	00:00 Hours	92:00 Hours
<b>FIC/N9505: Carry out preventive maintenance of Effluent Treatment Plant (ETP) NOS Version No.: 1.0 NSQF Level: 3</b>	<b>24:00 Hours</b>	<b>40:00 Hours</b>	<b>00:00 Hours</b>	<b>00:00 Hours</b>	<b>64:00 Hours</b>
Module 3: Maintenance of Effluent Treatment Plant (ETP)	24:00 Hours	40:00 Hours	00:00 Hours	00:00 Hours	64:00 Hours
<b>FIC/N9901: Implement</b>	<b>08:00</b>	<b>16:00</b>	<b>00:00 Hours</b>	<b>00:00 Hours</b>	<b>24:00 Hours</b>

<b>health and safety practices at the workplace NOS Version No.: 1.0 NSQF Level: 3</b>	<b>Hours</b>	<b>Hours</b>			
Module 4: Ensuring food safety and personal hygiene	04:00 Hours	08:00 Hours	00:00 Hours	00:00 Hours	12:00 Hours
Module 5: Managing accidents and emergencies	04:00 Hours	08:00 Hours	00:00 Hours	00:00 Hours	12:00 Hours
<b>FIC/N9902: Work effectively in an organization NOS Version No.: 1.0 NSQF Level: 3</b>	<b>08:00 Hours</b>	<b>08:00 Hours</b>	<b>00:00 Hours</b>	<b>00:00 Hours</b>	<b>16:00 Hours</b>
Module 6: Working effectively in an organisation	08:00 Hours	08:00 Hours	00:00 Hours	00:00 Hours	16:00 Hours
<b>SGJ/N1702: Optimize resource utilization at workplace NOS Version No.: 1.0 NSQF Level: 3</b>	<b>12:00 Hours</b>	<b>24:00 Hours</b>	<b>00:00 Hours</b>	<b>00:00 Hours</b>	<b>36:00 Hours</b>
Module 7: Material conservation	04:00 Hours	08:00 Hours	00:00 Hours	00:00 Hours	12:00 Hours
Module 8: Energy/ electricity conservation	04:00 Hours	08:00 Hours	00:00 Hours	00:00 Hours	12:00 Hours
Module 9: Waste management/recycling	04:00 Hours	08:00 Hours	00:00 Hours	00:00 Hours	12:00 Hours
<b>Employability and Entrepreneurship skills</b>	<b>28:00 Hours</b>	<b>12:00 Hours</b>	<b>00:00 Hours</b>	<b>00:00 Hours</b>	<b>40:00 Hours</b>
Module 10: Employability and Entrepreneurship skills	28:00 Hours	12:00 Hours	00:00 Hours	00:00 Hours	40:00 Hours
<b>Total Duration</b>	<b>120 Hours</b>	<b>160 Hours</b>	<b>00:00 Hours</b>	<b>00:00 Hours</b>	<b>280 Hours</b>

# Module Details

## Module 1: Introduction to food processing sector and the job role of an Effluent Treatment Plant Operator - Food Processing Facility

### Bridge Module

#### Terminal Outcomes:

- Discuss about future scope and opportunities available to effluent treatment plant operators in food processing industry
- Discuss the role and responsibilities of Effluent Treatment Plant Operator

<b>Duration: 08:00</b>	<b>Duration: 00:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Discuss the size and scope of the food processing industry in brief.</li> <li>• Discuss the future trends and career growth opportunities available to the Effluent Treatment Plant (ETP) Operator.</li> <li>• Summarise the key role and responsibilities of 'Effluent Treatment Plant Operator - Food Processing Facility'.</li> <li>• List the various terminologies used in the operation and maintenance of treatment plants in a food processing industry.</li> <li>• Discuss the organisational policies to be followed pertaining to the delivery standards, health, safety and hazard handling procedures, integrity, dress code, etc.</li> <li>• State the importance of planning before starting the work.</li> </ul>	
<b>Classroom Aids:</b>	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.	
<b>Tools, Equipment and Other Requirements</b>	
Nil	

## Module 2: Operation of Effluent Treatment Plant (ETP)

*Mapped to FIC/N9504, v1.0*

### Terminal Outcomes:

- List the pre-requisites for ETP operation
- Perform various tasks to operate the ETP effectively

<b>Duration: 32:00</b>	<b>Duration: 60:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Discuss standards and procedures followed in the organization for operating the effluent treatment plant.</li> <li>• List the various parts of an ETP.</li> <li>• Describe the functioning of various components of an ETP.</li> <li>• List the information to be obtained from the supervisor required for ensuring effective operation of the ETP.</li> <li>• List the various types of effluents and wastes generated in a food processing industry.</li> <li>• Elucidate the treatment operations to be carried out as per the type of effluents and wastes produced.</li> <li>• List the materials (chemicals, tools, etc.) required for operation of effluent treatment plants.</li> <li>• Describe the characteristics of materials such as cleaning brush, lever, self-contained breathing and testing apparatus, cleaning agents, etc., including chemicals, filters, tools, equipment, and accessories to be used for carrying out the treatment operations.</li> <li>• State the significance of manufacturers' instructions for using chemicals, equipment, machines and testing apparatus for effluent treatment.</li> <li>• Discuss the necessary safety procedures to be followed for dealing with workplace hazards and avoiding accidents.</li> <li>• Describe the local guidelines and environmental laws applicable to effluent treatment in the food processing industry.</li> <li>• Recall the basic mathematical principles and calculations performed in the job.</li> </ul>	<ul style="list-style-type: none"> <li>• Show how to arrange the materials such as cleaning brush, lever, self-contained breathing apparatus, cleaning agents, etc., chemicals, filters, tools, equipment, fixtures, accessories, etc.</li> <li>• Apply appropriate measures to check the input material, chemicals and equipment for defects before use.</li> <li>• Demonstrate the procedure followed to clean the equipment, fixtures and accessories, testing apparatus, work area, etc. appropriately.</li> <li>• Set the desirable values of machine parameters i.e., temperature, pressure, ampere load, etc. for effluent treatment.</li> <li>• Prepare a sample plan (materials required, time of inspection, type of checks performed, any requirements, etc.) to be followed for effective ETP operation.</li> <li>• Demonstrate the procedure for carrying out treatment operations (sludge processing and disposal, chemical-feeding etc.) for purifying the water.</li> <li>• Show how to adjust, start and stop the pumps and valves to control the flow of raw waste.</li> <li>• Demonstrate various specialised activities such as activated-sludge, grit-removal, pump-and-blower, sludge-control or sludge-filtration.</li> <li>• Show how to monitor the variations in operating conditions and determine the load requirements of plant by reading meter and gauges.</li> <li>• Prepare sample records for recording information such as operational data and gauge readings.</li> </ul>

<ul style="list-style-type: none"> <li>• Describe filtering, settling, aeration and sludge digestion processes.</li> <li>• Describe the procedure to add the chemicals, drying sludge etc. for treatment.</li> <li>• Discuss machine parameters i.e., temperature, pressure, ampere load, etc. and their impact on ETP operation.</li> <li>• Describe the different stages and processes of effluent treatment.</li> <li>• Discuss the role of treatment operations such as sludge processing and disposal, chemical feeding for purification of water.</li> <li>• Elucidate measures to monitor the separation of floating material and heavy solids and other substances from liquid waste.</li> <li>• State the significance of testing the samples in the laboratory.</li> <li>• Explain the physical, chemical and biological methods for effluent treatment in food processing industry.</li> <li>• List the data analytics tools and methods used to analyse and interpret the information as required in the job.</li> <li>• State the importance of maintaining records and reports as required in the job .</li> <li>• Describe various methods used for the disposal of solid waste.</li> </ul>	<ul style="list-style-type: none"> <li>• Apply suitable measures to collect water samples and test them appropriately.</li> <li>• Calculate the treatment requirements, flow levels and concentration levels of water using the data obtained after testing.</li> <li>• Prepare sample records and reports consisting of information such as tests conducted, key observations and abnormalities to be communicated to the senior personnel.</li> <li>• Show how to segregate the food and non-food residuals and collect the waste materials in designated containers.</li> <li>• Employ appropriate biological method/s to pre-treat the solid waste thoroughly.</li> <li>• Apply appropriate ways for reusing the residuals as per the type of waste and wastewater in adherence with environmental and state regulations.</li> </ul>
<b>Classroom Aids:</b>	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
<b>Tools, Equipment and Other Requirements</b>	
Cleaning brush, lever, self-contained breathing apparatus, cleaning agents, cleaning chemicals, filters, tools, equipment, fixtures, accessories, testing apparatus, effluent water samples, gauges, logbooks, gloves and sample records.	



## Module 3: Maintenance of Effluent Treatment Plant (ETP)

Mapped to FIC/N9505, v1.0

### Terminal Outcomes:

- Identify the requirements for maintaining the Effluent Treatment Plant (ETP)
- Perform various tasks for carrying out ETP maintenance

<b>Duration: 24:00</b>	<b>Duration: 40:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Discuss the standards, policies and procedures followed in the organization for maintaining the effluent treatment plant in a food processing industry.</li> <li>• State the importance of equipment layout, technical drawings, maintenance schedule and checklist for carrying out plant maintenance.</li> <li>• Describe the information to be obtained for planning the maintenance process.</li> <li>• List tools, consumables and spare parts required during maintenance.</li> <li>• Elaborate ways to check the detention capacity, effluent flow and effluent disinfection flow in the contact chamber.</li> <li>• List the steps to test the effluent for total chlorine and adjust its dosage rate up to the required levels and stability.</li> <li>• Discuss the safe practices to be followed for using tools, gauges, machinery and equipment utilised in the maintenance process.</li> <li>• Discuss the necessary precautions to be undertaken for handling hazards and preventing accidents during plant maintenance.</li> <li>• Elaborate the corrective actions taken to address equipment faults.</li> <li>• List the types of documents to be prepared pertaining to maintenance tasks being carried out.</li> <li>• List the information to be recorded during maintenance.</li> <li>• Describe the methods used for safe disposal of waste material from the food processing workplace.</li> </ul>	<ul style="list-style-type: none"> <li>• Show how to clean the work area to prepare for carrying out maintenance work.</li> <li>• Show how to inspect the various parts of an effluent treatment plant, including associated machines, accessories and electrical wiring for possible defects and faults.</li> <li>• Show how to clean and lubricate moving parts of an ETP such as pumps, blowers, etc.</li> <li>• Employ appropriate ways to troubleshoot, repair and maintain the ETP.</li> <li>• Roleplay a situation on how to escalate the problems (such as equipment malfunctions, complex maintenance) beyond own scope to the concerned personnel.</li> <li>• Prepare a sample report about any malfunctions/repairs and maintenance activity done.</li> <li>• Show how to check the ETP to ensure it is working as per desired standards.</li> <li>• Show how to dispose unwanted components safely as per organisational and environmental guidelines.</li> </ul>

<b>Classroom Aids:</b>	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
<b>Tools, Equipment and Other Requirements</b>	
Industrial maintenance tools, pumps and motors, electrical panels (starters, meters (energy, voltage, amperage, power factor), manual or electrically operated trolley gantry, blow out fuses, valves, gates, scraping bridge trolley, aerators, reduction gears, open air weather casings for motors, sprocket wheels and chains for mechanical grit, water quality monitoring instruments and screen removing devices.	

## Module 4: Ensuring food safety and personal hygiene

### Mapped to FIC/N9901, v1.0

#### Terminal Outcomes:

- Explain the ways to ensure food safety and personal hygiene at the workplace
- Demonstrate the steps to be followed for implementing good hygiene and manufacturing practices

<b>Duration: 04:00</b>	<b>Duration: 08:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Define hazards and risks.</li> <li>• Recall the various types of health and safety equipment available in an organisation and the methods for obtaining them.</li> <li>• Discuss the organisational health and safety policies and procedures.</li> <li>• Discuss the relevant health and safety standards to be followed in the job as listed in 'The Food Safety and Standards Act, 2006'.</li> <li>• Explain the importance of wearing appropriate personal protective equipment (such as eye protection, hard hats, gloves apron, rubber boots, etc.) and ensuring personal hygiene at the workplace.</li> <li>• Elucidate the ways to prevent product contamination and cross contamination at the workplace.</li> <li>• Discuss the ways to handle items that can lead to allergic reactions in a retail environment.</li> <li>• State the importance of preventive health check-ups for ensuring personal hygiene.</li> <li>• State the importance of storing food at specified temperature.</li> <li>• Discuss the importance of sanitising self and the work area safely and appropriately.</li> <li>• Recall the ways to store the sanitising materials appropriately.</li> </ul>	<ul style="list-style-type: none"> <li>• Employ appropriate techniques to prevent product contamination and cross contamination.</li> <li>• Demonstrate the steps to be performed for implementing good manufacturing practices (GMP) in a retail environment.</li> <li>• Show how to treat injuries such as cuts, boils, skin infections and grazes appropriately.</li> <li>• Apply suitable methods for disinfecting the work area and equipment thoroughly.</li> <li>• Demonstrate how to wash hands and use alcohol-based sanitisers appropriately.</li> <li>• Show how to wear personal protective equipment such as gloves, hairnets, masks, ear plugs, goggles, shoes etc. properly ensuring adequate protection.</li> <li>• Prepare a sample report consisting of information such as illness to self and others as per organisational practice.</li> <li>• Roleplay a situation on how to communicate with the supervisor for reporting illness of self and others.</li> </ul>
<b>Classroom Aids:</b>	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
<b>Tools, Equipment and Other Requirements</b>	

Gloves, hair net, shoe cover, soap dispenser, hand sanitizer, ear plugs, masks, aprons/lab coats  
eye protection, hard hats, gloves, rubber boots, etc.

## Module 5: Managing accidents and emergencies

### Mapped to FIC/N9901, v1.0

#### Terminal Outcomes:

- List the various types of accidents and emergencies that can arise at the workplace and the ways to address them
- Demonstrate the steps to be followed to implement emergency and evacuation procedures effectively

<b>Duration: 04:00</b>	<b>Duration: 08:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• List the various types of health and safety hazards present in the environment.</li> <li>• Discuss the possible causes of risk, hazard or accident at the workplace.</li> <li>• Elucidate the standard practices and precautions used to control and prevent risks, hazards and accidents at the workplace.</li> <li>• Discuss the dangers associated with the use of electrical and other equipment.</li> <li>• State the importance of using protective equipment and clothing for specific tasks and work conditions.</li> <li>• Discuss the role of organisational protocols in preventing accidents and hazards.</li> <li>• Recall the preventive and remedial actions to be taken in the case of exposure to toxic materials at the workplace.</li> <li>• Discuss the various causes of fire and ways to prevent them.</li> <li>• Elaborate the steps to use different types of fire extinguishers.</li> <li>• Explain the procedure to provide artificial respiration and cardio-pulmonary resuscitation (CPR) to the affected.</li> <li>• Summarise the rescue techniques to be followed at times of fire hazard.</li> <li>• Discuss the significance of various types of hazard and safety signs.</li> <li>• Discuss the workplace emergency and evacuation procedures.</li> <li>• Elaborate the type of first-aid treatment to be offered at times of shock, electrical shock, bleeding, breaks to bones, minor</li> </ul>	<ul style="list-style-type: none"> <li>• Apply appropriate techniques to deal with hazards safely and appropriately.</li> <li>• Demonstrate the use of various types of fire extinguishers effectively.</li> <li>• Demonstrate appropriate ways to respond to an accident situation or medical emergency promptly and appropriately.</li> <li>• Demonstrate the steps to be followed for providing artificial respiration and cardio-pulmonary resuscitation (CPR) in various instances (e.g. cardiac arrest).</li> <li>• Perform the steps to be followed during emergency and evacuation procedure.</li> <li>• Demonstrate the procedure of freeing a person from electrocution.</li> <li>• Show how to administer appropriate first aid to victims in case of cuts, bleeding, burns, choking, electric shock, poisoning etc.</li> </ul>

<p>burns, resuscitation, poisoning, eye injuries, etc.</p> <ul style="list-style-type: none"> <li>• Discuss about the potential injuries and ill health conditions that are caused due to incorrect manual handling practices.</li> <li>• List the precautions to be taken while lifting and carrying materials in a food retail environment.</li> </ul>	
<b>Classroom Aids:</b>	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
<b>Tools, Equipment and Other Requirements</b>	
Helmet, gloves, rubber mat, ladder, neon tester, leather or asbestos gloves, flame proof aprons, flame proof overalls buttoned to neck, cuff less (without folds) trousers, reinforced footwear, helmets/hard hats, cap and shoulder covers, ear defenders/plugs, safety boots, knee pads, particle masks, glasses/goggles/visors, hand and face shields, machine guards, residual current Devices, shields, dust sheets, respirator.	

## Module 6: Working effectively in an organization

### Mapped to FIC/N9902, v1.0

#### Terminal Outcomes:

- State the importance of proper communication and teamwork at the workplace
- Roleplay a situation to communicate with others effectively

<b>Duration: 08:00</b>	<b>Duration: 08:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Discuss the applicable organisational quality procedures and processes for working effectively in a team.</li> <li>• Elucidate the legislations, standards, policies, and procedures followed in the organization relevant to employment, behaviour, harassment, discrimination, and performance conditions.</li> <li>• State the importance of well-defined reporting structure in an organisation.</li> <li>• List the various types of inter-dependent functions applicable in the job.</li> <li>• Discuss the different types of harassment and discrimination based on gender, disability, caste, religion, and culture.</li> <li>• List the key factors that aid in prioritising tasks.</li> <li>• Discuss the components of effective communication and its importance at the workplace.</li> <li>• State the impact of poor communication on the employee, the employer, and the customer.</li> <li>• State the importance of teamwork in organizational and individual success.</li> <li>• Discuss the importance of ethics and discipline for professional success.</li> <li>• Explain the ways to address grievances appropriately and effectively.</li> <li>• Discuss the importance of managing interpersonal conflicts effectively and ways to do so.</li> <li>• List the different types of disabilities and the challenges faced by persons with disability (PwD).</li> </ul>	<ul style="list-style-type: none"> <li>• Roleplay a situation on how to obtain information, seek clarifications, reciprocate understanding and provide information accurately and clearly.</li> <li>• Roleplay a situation on how to use inclusive language (verbal, non-verbal and written) that is gender, disability and culturally sensitive while interacting with others.</li> <li>• Show how to consult and assist others to maximize effectiveness and efficiency at work.</li> <li>• Dramatise a situation to show how to escalate problems and grievances beyond own scope to the concerned authority.</li> <li>• Roleplay a situation on how to take appropriate action to resolve conflicts at the workplace.</li> <li>• Roleplay a situation on how to report incidents of harassment and discrimination to appropriate authority.</li> </ul>

<ul style="list-style-type: none"> <li>• Discuss the applicable laws, acts and provisions defined for PwD by the statutory bodies.</li> <li>• State the importance of gender sensitivity and equality.</li> <li>• Discuss the applicable legislations, grievance redressal mechanisms, and penalties against harassment at the workplace.</li> <li>• State the importance of transacting with others without personal bias.</li> </ul>	
<b>Classroom Aids:</b>	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
<b>Tools, Equipment and Other Requirements</b>	
Nil	



## Module 7: Material Conservation

Mapped to SGJ/N1702, v1.0

### Terminal Outcomes:

- Discuss optimal usage of material including water in various tasks/activities/processes

<b>Duration: 04:00</b>	<b>Duration: 08:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• List the types of hazards, risks and threats associated with handling different materials.</li> <li>• Discuss the role of workstation layout, electrical and thermal equipment used in the material conservation.</li> <li>• Discuss organisational procedures for minimising waste.</li> <li>• Elucidate practices of efficient and inefficient management and utilization of material and water at the workplace.</li> <li>• Discuss the ways to manage material and water usage at work effectively.</li> </ul>	<ul style="list-style-type: none"> <li>• Show how to check for spills and leakages in various materials applicable in the job.</li> <li>• Demonstrate how to plug the spills and leakages appropriately.</li> <li>• Roleplay a situation on how to escalate any issues related to repair of spills and leakages to the concerned authority effectively.</li> <li>• Demonstrate the standard practices to be followed for cleaning tools, machines and equipment effectively.</li> </ul>
<b>Classroom Aids:</b>	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
<b>Tools, Equipment and Other Requirements</b>	
Materials and tools and equipment used at work	

## Module 8: Energy/electricity conservation

### Mapped to SGJ/N1702, v1.0

#### Terminal Outcomes:

- Discuss optimal usage of energy/electricity

<b>Duration: 04:00</b>	<b>Duration: 08:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Define electricity.</li> <li>• Discuss the basics of electricity.</li> <li>• List the energy efficient devices that are used in the job.</li> <li>• Discuss the ways to identify electrical problems that can arise during work.</li> <li>• Discuss the standard practices to be followed for conserving electricity in the job.</li> <li>• State the impact of improperly connected electrical equipment and appliances on the tasks being performed.</li> </ul>	<ul style="list-style-type: none"> <li>• Apply suitable techniques to check the equipment/machinery for desired level of functioning.</li> <li>• Employ appropriate methods to rectify faulty equipment/machinery safely.</li> <li>• Roleplay a situation on how to report equipment faults and maintenance lapses to the concerned personnel effectively.</li> </ul>
<b>Classroom Aids:</b>	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook	
<b>Tools, Equipment and Other Requirements</b>	
Energy saving devices	

## Module 9: Waste management/recycling

### Mapped to SGJ/N1702, v1.0

#### Terminal Outcomes:

- Discuss the importance of minimal waste generation
- Demonstrate how to dispose waste as per industry approved standards

<b>Duration:</b> 04:00	<b>Duration:</b> 08:00
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• List the various types of recyclable, non-recyclable, and hazardous waste.</li> <li>• State the significance of different coloured dustbins.</li> <li>• List the different types of waste to be segregated.</li> <li>• State the importance of waste management.</li> <li>• Discuss the standard methods for waste disposal.</li> <li>• List the sources of pollution.</li> <li>• Discuss the ways to minimise various types of pollution.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate the standard practices to be followed for segregating waste into respective categories.</li> <li>• Show how to dispose non-recyclable waste appropriately and safely.</li> <li>• Demonstrate the standard practice for depositing recyclable and reusable materials at designated place.</li> <li>• Show how to dispose hazardous waste safely and appropriately.</li> </ul>
<b>Classroom Aids:</b>	
Computer, Projection Equipment, PowerPoint Presentation, Facilitator’s Guide, Participant’s Handbook	
<b>Tools, Equipment and Other Requirements</b>	
Non-recyclable, recyclable waste bins	

## Module 10 : Employability and Entrepreneurship skills

### Terminal Outcomes:

- Describe the traits of individual at workplace
- Demonstrate apply employability and entrepreneurship skills at workplace

<i>Duration: 28:00</i>	<i>Duration: 12:00</i>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Discuss own strengths and weaknesses and analyse the gaps to ensure continuous improvement.</li> <li>• Discuss the measures to be undertaken to utilise time effectively thereby achieving maximum productivity.</li> <li>• List the characteristics of innovative individuals</li> <li>• List the levels of Maslow Hierarchy of needs</li> <li>• List the traits of effective team</li> <li>• Discuss tips for stress management</li> <li>• Discuss the importance of good work ethics</li> <li>• Discuss how to manage an enterprise</li> <li>• Describe how to plan effective strategies for solving problems and improving work culture within the team.</li> <li>• List the various types of digital marketing techniques.</li> <li>• Discuss the types and importance of e-commerce in promoting businesses.</li> <li>• List the various types of online banking services being used widely.</li> <li>• Discuss the procedure to apply for bank finances</li> <li>• List the elements of a proposal to attract future business opportunities and prospective clients.</li> <li>• Explain how to conduct entrepreneurial programs to identify business opportunities, generate employment and increase clientele.</li> <li>• Understand the make in India campaign</li> <li>• Discuss the importance of Swachh Bharat Abhiyan</li> <li>• Understand the importance of entrepreneurship</li> </ul>	<ul style="list-style-type: none"> <li>• Show how to analyse a situation to identify gaps for improving the work process.</li> <li>• Demonstrate the procedure to plan the time taken to perform various tasks effectively.</li> <li>• Describe how market research is carried out</li> <li>• Role play the characteristics of an effective entrepreneur and leader</li> <li>• Demonstrate on how to identify new business opportunities</li> <li>• Prepare a sample plan to solve problems and improve productivity at the workplace.</li> <li>• Demonstrate the procedure to operate a computer for digital marketing, e-commerce, branding, etc.</li> <li>• Show how to use services such as NEFT, IMPS, UPI, RTGS for online banking.</li> </ul>

- Describe the traits of successful entrepreneur
- List the types of enterprises
- Understand the importance of effective speaking and listening
- Discuss the importance of problem solving
- Discuss how to deal with failures
- Describe the core keys of marketing
- Discuss ways to manage risks at workplace

**Classroom Aids:**

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook.

**Tools, Equipment and Other Requirements**

Nil

# Annexure

## Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification <i>&lt;Select the minimum educational requirements, such as 12<sup>th</sup> Pass, Graduate or NSQF certified.&gt;</i>	Specialization <i>&lt;Specify the areas of specialization that are desirable.&gt;</i>	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
ITI/Diploma	Any stream	2	Supervisor – ETP Operations	1	Training ETP operators and maintenance personnel	

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role: “Effluent Treatment Plant Operator- Food Processing Facility” mapped to QP: “FIC/Q9502, v1.0”. Minimum accepted score is 80%.	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q2601”. Minimum accepted score as per MEPSC guidelines is 80%.

## Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification <i>&lt;Select the minimum educational requirements, such as 12<sup>th</sup> Pass, Graduate or NSQF certified.&gt;</i>	Specialization <i>&lt;Specify the areas of specialization that are desirable.&gt;</i>	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
ITI/Diploma	Any stream	3	Supervisor – ETP Operations	1	Assessment of individuals who have undergone training in ETP operation and maintenance	

Assessor Certification	
Domain Certification	Platform Certification
Certified for Job Role: “Effluent Treatment Plant Operator- Food Processing Facility” mapped to QP: “FIC/Q9502, v1.0”. Minimum accepted score is 80%.	Recommended that the Assessor is certified for the Job Role: “Assessor”, mapped to the Qualification Pack: “MEP/Q2701”. Minimum accepted score as per MEPSC guidelines is 80%.

## Assessment Strategy

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

Assessment will be based on the concept of Independent Assessors empanelled with Assessment Agencies, identified, selected, trained and certified on Assessment techniques. These assessors would be aligned to assess as per the laid down criteria.

Assessment Agency would conduct assessment only at the training centres of Training Partner or designated testing centers authorized by FICSI.

Ideally, the assessment will be a continuous process comprising of three distinct steps:

- A. Mid- term assessment
- B. Term / Final Assessment

Each National Occupational Standard (NOS) in the respective QPs will be assigned weightage. Therein each Performance Criteria in the NOS will be assigned marks for theory and / or practical based on relative importance and criticality of function.

This will facilitate preparation of question bank / paper sets for each of the QPs. Each of these papers sets / question bank so created by the Assessment Agency will be validated by the industry subject matter experts through FICSI, especially with regard to the practical test and the defined tolerances, finish, accuracy etc.

The following tools are proposed to be used for final assessment:

- I. **Written Test:** This will comprise of
  - a. True / False Statements
  - b. Multiple Choice Questions
  - c. Matching Type QuestionsOnline system for this will be preferred.
- II. **Practical Test:** This will comprise a test job to be prepared as per project briefing following appropriate working steps, using necessary tools, equipment and instruments. Through observation it will be possible to ascertain candidate's aptitude, attention to details, quality consciousness etc. The end product will be measured against the pre-decided MCQ filled by the Assessor to gauge the level of his skill achievements.
- III. **Structured Interview:** This tool will be used to assess the conceptual understanding and the behavioural aspects as regards the job role and the specific task at hand.



## Glossary

Term	Description
<b>Declarative Knowledge</b>	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
<b>Key Learning Outcome</b>	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
<b>OJT (M)</b>	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
<b>OJT (R)</b>	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
<b>Procedural Knowledge</b>	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
<b>Training Outcome</b>	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
<b>Terminal Outcome</b>	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

## Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
FIFO	First In First Out
FEFO	First Expire First Out
GMP	Good Manufacturing Practices
GHP	Good Hygiene Practices
CPR	Cardiopulmonary Resuscitation
ETP	Effluent Treatment Plant