Model Curriculum

QP Name: Refrigeration Technician - Food Processing Facility

QP Code: FIC/Q9501

QP Version: 1.0

NSQF Level: 4

Model Curriculum Version: 1.0

Food Industry Capacity and Skill Initiative (FICSI)
Shriram Bharatiya Kala Kendra (3rd Floor)
1, Copernicus Marg, New Delhi 110001
Phone: 9711260230

Table of Contents

Training Parameters

Sector	Food Processing
Sub-Sector	Generic
Occupation	Utilities and Maintenance
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7127.010
Minimum Educational Qualification and Experience	1. Class 12th passed in science stream 2. Class 10th passed and 2 years course in relevant stream 3. Class 10th passed and 2 years of relevant experience 4. Class 10th pass and 2 years of ITI
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 years
Last Reviewed On	31/05/2021
Next Review Date	31/05/2024
NSQC Approval Date	
QP Version	1.0
Model Curriculum Creation Date	18/05/2021
Model Curriculum Valid Up to Date	31/05/2024
Model Curriculum Version	1.0
Minimum Duration of the Course	340 Hours
Maximum Duration of the Course	340 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 steps to prepare the work area, tools, material and equipment for operation and maintenance of refrigeration system
- Perform routine tasks for operating the refrigeration system and cold storage rooms effectively
- Carry out repair and maintenance of the refrigeration system and cold storage facility
- 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
Bridge Module	**08:00 Hours**	**00:00 Hours**	**00:00 Hours**	**00:00 Hours**	**08:00 Hours**
Module 1: Introduction to food processing sector and the job of Refrigeration Technician - Food Processing Facility	08:00 Hours	00:00 Hours	00:00 Hours	00:00 Hours	08:00 Hours
FIC/N9501: Prepare work area and refrigeration equipment NOS Version No.: 1.0 NSQF Level: 4	**08:00 Hours**	**20:00 Hours**	**00:00 Hours**	**00:00 Hours**	**28:00 Hours**
Module 2: Prepare work area and refrigeration equipment	08:00 Hours	20:00 Hours	00:00 Hours	00:00 Hours	28:00 Hours
FIC/N9502: Operate refrigeration systems at food processing workplace NOS Version No.: 1.0 NSQF Level: 4	**32:00 Hours**	**72:00 Hours**	**00:00 Hours**	**00:00 Hours**	**104:00 Hours**
Module 3: Operation of refrigeration system	32:00 Hours	72:00 Hours	00:00 Hours	00:00 Hours	104:00 Hours

FIC/N9503: Carry out preventive maintenance of refrigeration system at food processing workplace NOS Version No.: 1.0 NSQF Level: 4	**20:00 Hours**	**64:00 Hours**	**00:00 Hours**	**00:00 Hours**	**84:00 Hours**
Module 4: Maintenance of refrigeration system	20:00 Hours	64:00 Hours	00:00 Hours	00:00 Hours	84:00 Hours
FIC/N9901: Implement health and safety practices at the workplace NOS Version No.: 1.0 NSQF Level: 3	**08:00 Hours**	**16:00 Hours**	**00:00 Hours**	**00:00 Hours**	**24:00 Hours**
Module 5: Ensuring food safety and personal hygiene	04:00 Hours	08:00 Hours	00:00 Hours	00:00 Hours	12:00 Hours
Module 6: Managing accidents and emergencies	04:00 Hours	08:00 Hours	00:00 Hours	00:00 Hours	12:00 Hours
FIC/N9902: Work effectively in an organization NOS Version No.: 1.0 NSQF Level: 3	**08:00 Hours**	**08:00 Hours**	**00:00 Hours**	**00:00 Hours**	**16:00 Hours**
Module 7: Working effectively in an organisation	08:00 Hours	08:00 Hours	00:00 Hours	00:00 Hours	16:00 Hours
SGJ/N1702: Optimize resource utilization at workplace NOS Version No.: 1.0 NSQF Level: 3	**12:00 Hours**	**24:00 Hours**	**00:00 Hours**	**00:00 Hours**	**36:00 Hours**
Module 8: Material conservation	04:00 Hours	08:00 Hours	00:00 Hours	00:00 Hours	12:00 Hours
Module 9: Energy/ electricity conservation	04:00 Hours	08:00 Hours	00:00 Hours	00:00 Hours	12:00 Hours
Module 10: Waste management/recycling	04:00 Hours	08:00 Hours	00:00 Hours	00:00 Hours	12:00 Hours
Employability and Entrepreneurship skills	**28:00 Hours**	**12:00 Hours**	**00:00 Hours**	**00:00 Hours**	**40:00 Hours**
Module 11: Employability and Entrepreneurship skills	28:00 Hours	12:00 Hours	00:00 Hours	00:00 Hours	40:00 Hours
Total Duration	**124 Hours**	**216 Hours**	**00:00 Hours**	**00:00 Hours**	**340 Hours**

Module Details

Module 1: Introduction to food processing sector and the job role of 'Refrigeration Technician - Food Processing Facility'

Bridge Module

Terminal Outcomes:

- Discuss about future scope and opportunities available to refrigeration technicians in food processing industry
- Discuss the role and responsibilities of a Refrigeration Technician - Food Processing Facility

Duration: *08:00*	**Duration**: *00:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the size and scope of the food processing industry in brief. • Discuss the future trends and career growth opportunities available to refrigeration technicians. • Summarise the key roles and responsibilities of Refrigeration Technician - Food Processing Facility. • List the various terminologies used in operation and maintenance of refrigeration system in a food processing industry. • Discuss the organisational policies to be followed pertaining to the delivery standards, health, safety and hazard handling procedures, integrity, dress code, etc. • State the significance of ensuring a clean and a tidy workplace. • State the importance of planning the tasks and material requirements before starting the work.	
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Nil	

Module 2: Prepare work area and refrigeration equipment

Mapped to FIC/N9501, v1.0

Terminal Outcomes:

- Identify material requirements to prepare for operation and maintenance of refrigeration system
- Perform routine tasks to prepare for operation and maintenance

Duration: *08:00*	**Duration**: *20:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the impact of waste and hazardous materials on the raw materials, processed food, packaged materials, etc. • Describe the storage requirements of various types of food products present in the processing industry. • Discuss the Food Safety and Standards Authority of India (FSSAI) regulations applicable to refrigeration in food processing industry. • Describe the standard industry practices followed for cleaning and sanitising the refrigeration systems and cold storage facilities. • List the material requirements for cleaning the work area. • Describe the procedure to use cleaning agents and sanitizers safely. • State the importance of following process manuals and supervisor's instructions for the operation and maintenance of refrigeration system. • List the tools, gauges and equipment required during operation and maintenance of the refrigeration system. • Discuss the SOP to be followed for using tools, gauges and equipment as required in the job. • Describe the standard methods used for disposing the waste from the workplace. • List actions to be taken in case of pest infestations, faulty tools and equipment.	• Show how to inspect and clean the work area thoroughly to ensure no undesirable substances are present. • Show how to plan and prioritise tasks to ensure effective operation. • Apply appropriate measures to inspect the tools, gauges and equipment to be used in the process. • Show how to store the various material as per their storage requirements based on different temperature and humidity • Demonstrate the procedure followed to clean and store the tools and equipment thoroughly after use. • Show how to dispose waste and hazardous materials safely as per organisational and environmental guidelines. • Roleplay a situation to report information such as pest infestations, material requirements, etc. to the supervisor accurately.
Classroom Aids:	
Computer, Projector, Presentation, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Refrigerators, work manuals, cleaning cloth, chemicals, sanitisers, gauges, checklist and logbooks.	

Module 3: Operation of refrigeration system

Mapped to FIC/N9502, v1.0

Terminal Outcomes:

- Discuss the standard practices followed for operating the refrigeration systems
- Demonstrate the sequence of steps to be followed to ensure effective refrigeration operation

Duration: *32:00*	**Duration**: *72:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the organisational policies and procedures followed for ensuring effective refrigeration operation. • Describe the various types of refrigeration systems installed in the food processing industry. • List the various parts of a refrigeration system. • Describe the functioning of a refrigeration system. • Describe the relevance of work instructions and technical drawings in the job. • Discuss the necessary precautions to be taken against hazards and to avoid accidents during operation. • Summarise the steps to be performed for checking the components, electrical connections, wiring and piping of the refrigeration system for any possible defects and faults. • Discuss desirable conditions to be ensured for storing materials in food processing industry. • Describe the storage parameters to be checked routinely and their impact on the stored food product. • Discuss the safe practices followed for checking the range of compressor discharge and suction pressures, voltage and amperage at the compressor terminals. • Explain the refrigeration processes such as pre-cooling, chilling, freezing, super-cooling and super-chilling.	• Apply appropriate measures to check the various refrigeration components, electrical connections, wiring and piping of the refrigeration system for possible defects and faults. • Show how to check the level of compressor oil and refill it while ensuring zero spillage. • Employ appropriate ways to check the liquid line sight glass for proper refrigerant charge and cooling tower (for water-cooled condenser) for any leakage. • Prepare a sample report containing information such as machine problems, component defects and other significant findings during the operation. • Apply appropriate measures to check the compressor discharge and suction pressures, voltage and amperage at the compressor terminals to ensure it is as per requirements. • Employ appropriate measures to check the operational condition of fans on the evaporator coil and condensing unit. • Show how to set and adjust the defrost control/timer clock, system controls and storage parameters as per the requirements of food storage. • Show how to verify the defrost initiation settings. • Employ standard work practices to monitor the readings in the temperature sensors, controllers and record them. • Set the desirable temperature for pre-cooling as per type of food (raw and processed) to be stored.

• Discuss the sensitivity levels of food products: high-sensitivity products such as mangoes, ginger, sweet potatoes; medium-sensitivity products such as tangerines, green beans, potatoes; low-sensitivity such as eggs, etc. • Explain the steps to be performed for monitoring, checking and adjusting the storage parameters i.e. temperature, humidity etc. at regular intervals thoroughly. • Recall the various types of quality issues such as decay, mold growth, sprouting, shrivelling, freezer burns etc. that can occur in the stored food. • Discuss the importance and ways of checking the quality of storage food periodically as specified. • List the types of information to be recorded and maintained in the process. • Describe the standard technique used for cleaning the refrigeration system and process auxiliaries appropriately.	• Show how to operate the refrigeration system and set the controls for storing frozen, super-cool and super-chill products. • Show how inspect the food for appropriate packaging and quality before storing. • Set the desirable temperature of the cold room facility for the pre-cooled and sensitive materials. • Demonstrate the steps to be followed to monitor, check and adjust the storage parameters i.e. temperature, humidity levels etc. as per storage requirements. • Apply suitable techniques to check the quality of stored food. • Show how to unload the stored food after specified storage period. • Apply appropriate measures to check the temperature and weight of food for any loss or deterioration after specified storage period. • Roleplay a situation to handover the stored materials to the concerned authority safely. • Demonstrate the procedure followed to clean the refrigeration system and process auxiliaries thoroughly.
Classroom Aids:	
Computer, Projector, Presentation, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Refrigerator, work manuals (such as work instructions), organisational documents, electrical tools, pen, pencil, compressor unit, oil can, refrigeration coolant, checklists, logbook and gloves.	

Module 4: Maintenance of refrigeration system

Mapped to FIC/N9503, v1.0

Terminal Outcomes:

- List the routine maintenance tasks carried out and its requirements pertaining to refrigeration in food processing environment
- Perform various tasks to ensure refrigeration systems are maintained effectively
- Prepare information records as required in the work process

Duration: *20:00*	**Duration**: *64:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss standards and procedures followed in the organization pertaining to the maintenance of a refrigeration system in a food processing industry. • Discuss how to identify the scope of work and plan the tasks from instructions from the senior personnel, organisational guidelines, type of refrigeration system, maintenance cycle etc. for the maintenance of refrigeration system. • State the importance of equipment layout or drawing, wiring diagrams, maintenance schedules and checklists for carrying out maintenance work of refrigeration system. • Describe the information to be obtained for planning the maintenance process. • List tools, consumables, spare parts etc. required during maintenance. • Discuss the SOP for using tools, gauges, machinery and equipment utilised in the maintenance process. • List the steps to be performed for arranging and storing the tools, consumables, spare parts etc. required during maintenance work. • Discuss the necessary precautions to be undertaken for handling hazards and preventing accidents during maintenance work. • List the steps to be performed for dismantling and assembling back the equipment as per SOP. • Elaborate corrective actions taken to address equipment faults.	• Demonstrate the procedure to arrange the tools, consumables, spare parts etc. required during maintenance work. • Employ appropriate measures to check the various components, safety controls, sensors, wirings and electrical connections of the cold storage or refrigeration system for defects and faults. • Apply appropriate techniques to troubleshoot, repair or replace and maintain the various components, safety controls, sensors, wirings and electrical connections of the cold storage or refrigeration system. • Employ appropriate ways to clean the drain pan, condenser and evaporator coils of the refrigeration system thoroughly. • Show how to check the refrigerant system for leakages and oil and refill as per the operational requirements. • Demonstrate the procedure to be followed for assembling the equipment post maintenance. • Show how to check the refrigeration system to ensure it is working as per desired standards. • Role play a situation on how to escalate the problems (such as equipment malfunctions, complex maintenance) beyond own scope to the concerned personnel. • Show how to dispose unwanted components safely as per organisational and environmental guidelines.

• Discuss ways to clean the drain pan, condenser and evaporator coils of the refrigeration system. • List the steps to be performed for observing the cold storage operations for any defects in its component and informing the supervisor. • List the types of documents to be prepared pertaining to maintenance tasks being carried out. • Discuss the importance of forms and checklists in the maintenance job. • Identify different methods for disposing off waste material from the food processing workplace safely. • Discuss the importance of supervisors' approval for maintenance work done.	• Roleplay the situation to obtain approval from the supervisor after completion of the maintenance job. • Prepare a sample report containing information such as maintenance work done, damaged parts, parts replaced, next scheduled maintenance, etc. to the supervisors accurately.
Classroom Aids:	
Computer, Projector, Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Refrigerator, work manuals (such as technical drawings and wiring connections), organisational documents, electrical tools, wire cutters, compressor unit, oil can, refrigeration coolant, multimeter, vacuum gauge, flaring tools, pipe calibration tools (internal/external), ruler, pen, pencil, spray bottle (for leak detection), refrigeration ratchet, manifold gauge, weighing scale, torch, electronic leak detector and calibrated leak test; faulty tools, spare parts and consumables; checklists, logbook and gloves.	

Module 5: 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

Duration: *04:00*	**Duration**: *08:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Define hazards and risks. • Recall the various types of health and safety equipment available in an organisation and the methods for obtaining them. • Discuss the organisational health and safety policies and procedures. • Discuss the relevant health and safety standards to be followed in the job as listed in 'The Food Safety and Standards Act, 2006'. • 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. • Elucidate the ways to prevent product contamination and cross contamination at the workplace. • Discuss the ways to handle items that can lead to allergic reactions in a retail environment. • State the importance of preventive health check-ups for ensuring personal hygiene. • State the importance of storing food at specified temperature. • Discuss the importance of sanitising self and the work area safely and appropriately. • Recall the ways to store the sanitising materials appropriately.	• Employ appropriate techniques to prevent product contamination and cross contamination. • Demonstrate the steps to be performed for implementing good manufacturing practices (GMP) in a retail environment. • Show how to treat injuries such as cuts, boils, skin infections and grazes appropriately. • Apply suitable methods for disinfecting the work area and equipment thoroughly. • Demonstrate how to wash hands and use alcohol-based sanitisers appropriately. • Show how to wear personal protective equipment such as gloves, hairnets, masks, ear plugs, goggles, shoes etc. properly ensuring adequate protection. • Prepare a sample report consisting of information such as illness to self and others as per organisational practice. • Roleplay a situation on how to communicate with the supervisor for reporting illness of self and others.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Gloves, hair net, shoe cover, soap dispenser, hand sanitizer, ear plugs, masks, aprons/lab coats eye protection, hard hats, gloves, rubber boots, etc.	

Module 6: 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

Duration: *04:00*	**Duration**: *08:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of health and safety hazards present in the environment. • Discuss the possible causes of risk, hazard or accident at the workplace. • Elucidate the standard practices and precautions used to control and prevent risks, hazards and accidents at the workplace. • Discuss the dangers associated with the use of electrical and other equipment. • State the importance of using protective equipment and clothing for specific tasks and work conditions. • Discuss the role of organisational protocols in preventing accidents and hazards. • Recall the preventive and remedial actions to be taken in the case of exposure to toxic materials at the workplace. • Discuss the various causes of fire and ways to prevent them. • Elaborate the steps to use different types of fire extinguishers. • Explain the procedure to provide artificial respiration and cardio-pulmonary resuscitation (CPR) to the affected. • Summarise the rescue techniques to be followed at times of fire hazard. • Discuss the significance of various types of hazard and safety signs. • Discuss the workplace emergency and evacuation procedures. • Elaborate the type of first-aid treatment to be offered at times of shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries, etc. • Discuss about the potential injuries and ill health conditions that are caused due to incorrect manual handling practices.	• Apply appropriate techniques to deal with hazards safely and appropriately. • Demonstrate the use of various types of fire extinguishers effectively. • Demonstrate appropriate ways to respond to an accident situation or medical emergency promptly and appropriately. • Demonstrate the steps to be followed for providing artificial respiration and cardio-pulmonary resuscitation (CPR) in various instances (e.g. cardiac arrest). • Perform the steps to be followed during emergency and evacuation procedure. • Demonstrate the procedure of freeing a person from electrocution. • Show how to administer appropriate first aid to victims in case of cuts, bleeding, burns, choking, electric shock, poisoning etc.

• List the precautions to be taken while lifting and carrying materials in a food retail environment.	
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
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 7: 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

Duration: *08:00*	**Duration**: *08:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the applicable organisational quality procedures and processes for working effectively in a team. • Elucidate the legislations, standards, policies, and procedures followed in the organization relevant to employment, behaviour, harassment, discrimination, and performance conditions. • State the importance of well-defined reporting structure in an organisation. • List the various types of inter-dependent functions applicable in the job. • Discuss the different types of harassment and discrimination based on gender, disability, caste, religion, and culture. • List the key factors that aid in prioritising tasks. • Discuss the components of effective communication and its importance at the workplace. • State the impact of poor communication on the employee, the employer, and the customer. • State the importance of teamwork in organizational and individual success. • Discuss the importance of ethics and discipline for professional success. • Explain the ways to address grievances appropriately and effectively. • Discuss the importance of managing interpersonal conflicts effectively and ways to do so. • List the different types of disabilities and the challenges faced by persons with disability (PwD). • Discuss the applicable laws, acts and provisions defined for PwD by the statutory bodies. • State the importance of gender sensitivity and equality.	• Roleplay a situation on how to obtain information, seek clarifications, reciprocate understanding and provide information accurately and clearly. • 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. • Show how to consult and assist others to maximize effectiveness and efficiency at work. • Dramatise a situation to show how to escalate problems and grievances beyond own scope to the concerned authority. • Roleplay a situation on how to take appropriate action to resolve conflicts at the workplace. • Roleplay a situation on how to report incidents of harassment and discrimination to appropriate authority.

• Discuss the applicable legislations, grievance redressal mechanisms, and penalties against harassment at the workplace. • State the importance of transacting with others without personal bias.	
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Nil	

Module 8: Material Conservation

Mapped to SGJ/N1702, v1.0

Terminal Outcomes:

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

Duration: *04:00*	**Duration**: *08:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the types of hazards, risks and threats associated with handling different materials. • Discuss the role of workstation layout, electrical and thermal equipment used in the material conservation. • Discuss organisational procedures for minimising waste. • Elucidate practices of efficient and inefficient management and utilization of material and water at the workplace. • Discuss the ways to manage material and water usage at work effectively.	• Show how to check for spills and leakages in various materials applicable in the job. • Demonstrate how to plug the spills and leakages appropriately. • Roleplay a situation on how to escalate any issues related to repair of spills and leakages to the concerned authority effectively. • Demonstrate the standard practices to be followed for cleaning tools, machines and equipment effectively.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Materials and tools and equipment used at work	

Module 9: Energy/electricity conservation

Mapped to SGJ/N1702, v1.0

Terminal Outcomes:

- Discuss optimal usage of energy/electricity

Duration: *04:00*	**Duration**: *08:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Define electricity. • Discuss the basics of electricity. • List the energy efficient devices that are used in the job. • Discuss the ways to identify electrical problems that can arise during work. • Discuss the standard practices to be followed for conserving electricity in the job. • State the impact of improperly connected electrical equipment and appliances on the tasks being performed.	• Apply suitable techniques to check the equipment/machinery for desired level of functioning. • Employ appropriate methods to rectify faulty equipment/machinery safely. • Roleplay a situation on how to report equipment faults and maintenance lapses to the concerned personnel effectively.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Energy saving devices	

Module 10: 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

Duration: *04:00*	**Duration**: *08:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of recyclable, non-recyclable, and hazardous waste. • State the significance of different coloured dustbins. • List the different types of waste to be segregated. • State the importance of waste management. • Discuss the standard methods for waste disposal. • List the sources of pollution. • Discuss the ways to minimise various types of pollution.	• Demonstrate the standard practices to be followed for segregating waste into respective categories. • Show how to dispose non-recyclable waste appropriately and safely. • Demonstrate the standard practice for depositing recyclable and reusable materials at designated place. • Show how to dispose hazardous waste safely and appropriately.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Non-recyclable, recyclable waste bins	

Module 11 : Employability and Entrepreneurship skills

Terminal Outcomes:

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

Duration*: 28:00*	**Duration: *12:00***
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss own strengths and weaknesses and analyse the gaps to ensure continuous improvement. • Discuss the measures to be undertaken to utilise time effectively thereby achieving maximum productivity. • List the characteristics of innovative individuals • List the levels of Maslow Hierarchy of needs • List the traits of effective team • Discuss tips for stress management • Discuss the importance of good work ethics • Discuss how to manage an enterprise • Describe how to plan effective strategies for solving problems and improving work culture within the team. • List the various types of digital marketing techniques. • Discuss the types and importance of e-commerce in promoting businesses. • List the various types of online banking services being used widely. • Discuss the procedure to apply for bank finances • List the elements of a proposal to attract future business opportunities and prospective clients. • Explain how to conduct entrepreneurial programs to identify business opportunities, generate employment and increase clientele. • Understand the make in India campaign • Discuss the importance of Swachh Bharat Abhiyan • Understand the importance of entrepreneurship	• Show how to analyse a situation to identify gaps for improving the work process. • Demonstrate the procedure to plan the time taken to perform various tasks effectively. • Describe how market research is carried out • Role play the characteristics of an effective entrepreneur and leader • Demonstrate on how to identify new business opportunities • Prepare a sample plan to solve problems and improve productivity at the workplace. • Demonstrate the procedure to operate a computer for digital marketing, e-commerce, branding, etc. • Show how to use services such as NEFT, IMPS, UPI, RTGS for online banking.

• 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 *<Select the minimum educational requirements, such as 12th Pass, Graduate or NSQF certified.>*	**Specialization** *<Specify the areas of specialization that are desirable.>*	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
ITI/Diploma	Any stream	3	Supervisor-Cold Storage Facility	2	Training of individuals in operation and maintenance of refrigerant systems	

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Refrigeration Technician - Food Processing Facility, FIC/Q9504, 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 *<Select the minimum educational requirements, such as 12th Pass, Graduate or NSQF certified.>*	**Specialization** *<Specify the areas of specialization that are desirable.>*	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
ITI/Diploma	Any stream	2	Supervisor-Cold Storage Facility	1	Assessment of individuals trained in the operation and maintenance of refrigerant systems	

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Refrigeration Technician - Food Processing Facility, FIC/Q9504, 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 Questions

   Online 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 behavioral aspects as regards the job role and the specific task at hand.

Glossary

Term	Description
Declarative Knowledge	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.
Key Learning Outcome	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).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	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.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do **upon the completion of the training**.
Terminal Outcome	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