Model Curriculum

QP Name: Grain Miller

Electives: Milling of Rice/ Milling of Pulses

QP Code: FIC/Q7003

Version: 4.0

NSQF Level: 3.0

Model Curriculum Version: 4.0

Food Industry Capacity & Skill Initiative || Shriram Bharatiya Kala kendra, 3rd floor, 1, Copernicus Marg, Mandi House, New Delhi
Delhi 110001 || email: admin@ficsi.in

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Training Parameters

Sector	Food Processing
Sub-Sector	Food Grain Milling
Occupation	Flour Mill Operator
Country	India
NSQF Level	3
Aligned to NCO/ISCO/ISIC Code	NCO-2015/8160.1000
Minimum Educational Qualification and Experience	Grade 10 or equivalent OR 8th-grade pass with 3-year of experience in food processing OR Previous relevant Qualification of NSQF Level 2 with 3-year of experience in food processing OR Previous relevant qualification of NSQF Level 2.5 with 1.5-year of experience in food processing
Pre-Requisite License or Training	NA
Minimum Job Entry Age	16 Years
Last Reviewed On	22-10-2024
Next Review Date	21-10-2027
NSQC Approval Date	22-10-2024
QP Version	4.0
Model Curriculum Creation Date	30-08-2024
Model Curriculum Valid Up to Date	22-10-2027
Model Curriculum Version	4.0
Minimum Duration of the Course	300 Hours
Maximum Duration of the Course	450 Hours

Program Overview

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

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills to:

- Explain how to prepare to perform various tasks prior to production in the food processing industry.
- Explain how to operate a grain mill to produce various grain products.
- Discuss the procedures for maintaining the work area and grain milling equipment.
- Elucidate the essential components of food safety, Good Manufacturing Practices (GMP), and personal hygiene in the food industry.
- Discuss the Employability and Entrepreneurship Skills.

Compulsory Modules

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

NOS and Module Details	Theory Duration (Hours)	Practical Duration (Hours)	On-the-Job Training Duration (Mandatory) (Hours)	On-the-Job Training Duration (Recommended) (Hours)	Total Duration (Hours)
FIC/N9026: Prepare for Production **NOS Version No.: 1.0** **NSQF Level: 3.0**	**20:00**	**40:00**	**00:00**	**00:00**	**60:00**
Module 2: Carry Out Preparation for Production	20:00	40:00	00:00	00:00	60:00
FIC/N1005: Carry out wheat milling **NOS Version No.: 2.0** **NSQF Level: 3.0**	**40:00**	**50:00**	**30:00**	**00:00**	**120:00**
Module 1: Introduction to the Sector and the Job Role of a Grain Miller	05:00	00:00	00:00	00:00	05:00
Module 3: Set Up and Calibrate the Milling Equipment	05:00	10:00	15:00	00:00	30:00
Module 4: Carry out Pre-Processing, Processing and Post-Processing Activities of Wheat Milling	30:00	40:00	15:00	00:00	85:00
FIC/N1007: Maintain the Work Area and Grain Mill **NOS Version No.: 2.0**	**20:00**	**40:00**	**00:00**	**00:00**	**60:00**

NSQF Level: 3.0					
Module 5: Maintain the Work Area and Grain Milling Equipment	20:00	40:00	00:00	00:00	60:00
FIC/N9906: Apply food safety guidelines in Food Processing **NOS Version No.: 1.0** **NSQF Level: 3**	**10:00**	**20:00**	**00:00**	**00:00**	**30:00**
Module 6: Implement Personal Hygiene and Follow Good Manufacturing Practices	05:00	10:00	00:00	00:00	15:00
Module 7: Apply Food Safety Practices at Workplace	05:00	10:00	00:00	00:00	15:00
DGT/VSQ/N0101: Employability Skills (30 Hours) **NOS Version No.: 1.0** **NSQF Level: 2**	**30:00**	**00:00**	**00:00**	**00:00**	**30:00**
Module 8: Employability Skills (30 Hours)	30:00	00:00	00:00	00:00	30:00
Total Duration	**120:00**	**150:00**	**30:00**	**00:00**	**300:00**

Optional Modules

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

Option 1: Milling of Rice

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
FIC/N1028: Carry out milling of rice **NOS Version- 2.0** **NSQF Level- 4.0**	**30:00**	**60:00**	**00:00**	**00:00**	**90:00**
Module 9: Carry out Pre-Milling and Milling of Rice	20:00	40:00	00:00	00:00	60:00

Module 10: Carry out Post-Milling Quality Control and Storage of Rice	10:00	20:00	00:00	00:00	30:00
Total Duration	**30:00**	**60:00**	**00:00**	**00:00**	**90:00**

Option 2: Milling of Pulses

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
FIC/N1027: Carry out milling of pulses **NOS Version- 2.0** **NSQF Level- 4.0**	**30:00**	**30:00**	**00:00**	**00:00**	**60:00**
Module 11: Carry out Pre-processing & Wet Milling of Pulses	15:00	15:00	00:00	00:00	30:00
Module 12: Carry out Dry Milling of Pulses	15:00	15:00	00:00	00:00	30:00
Total Duration	**30:00**	**30:00**	**00:00**	**00:00**	**60:00**

Module Details

Module 1: Introduction to the Sector and the Job Role of a Grain Miller

Mapped to FIC/N1009, v2.0

Terminal Outcomes:

- Explain the importance of Food Processing Industry.
- Discuss the roles and responsibilities of a Grain Miller.

Duration (in hours): 05:00	**Duration (in hours): 00:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Define food processing. • Describe the various sub sectors of food processing industry. • Discuss the scope of employment in the food processing industry. • Describe the roles & responsibilities of a Grain Miller. • List the various terminologies used by a Grain Miller in the food processing industry. • Discuss the role of organisational policies and procedures in the job.	
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Nil	

Module 2: Carry Out Preparation for Production

Mapped to FIC/N9026, v1.0

Terminal Outcomes:

- Discuss the standard practices to be followed to plan for production.
- Demonstrate the tasks to be performed to prepare for the production process.

Duration (in hours): 20:00	**Duration (in hours): 40:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss how to plan and prioritize the tasks to be performed. • State the importance of obtaining work instructions from supervisor to plan the work process. • State the importance of process chart, product flow chart, formulation, chart, etc. to obtain required information. • List the materials, equipment and manpower required in the selection of fruits and vegetables. • List the key considerations to prepare the work schedule. • Identify the resource requirements as per the production schedule. • Explain how to utilise the machine capacity of the machinery involved with respect to the processing time, production order and batch size for each product. • List the chemical agents, sanitisers and methods used to clean the work area. • Identify different kinds of waste material and comprehend the ways to dispose them safely. • Describe how to carry out inspection of tools, equipment, and machinery to be used in the job. • Discuss the policies and procedures to be followed to prepare for the work process.	• Show how to prepare a plan to carry out various tasks as required in the job. • Show how to prepare sample estimates for resource requirements to carry out the tasks. • Demonstrate method to be followed for cleaning (CIP, COP etc) and maintaining a clean work area. • Demonstrate the use of different tools and machineries used in the selection of fruits and vegetables. • Show how to identify, label and store different chemicals in food processing unit safely. • Demonstrate with help of roleplay a situation on how to allot work and responsibilities to the team and confirm that they have understood. • Demonstrate the procedure to be followed for disposing the waste material (wet, dry, plastic, packaging material, food waste and glass waste) as per environmentally safe practices. • Show how to inspect the tools, equipment and machinery thoroughly for production. • Demonstrate how to receive and organize the work materials appropriately.

• State the importance of inspecting tools, equipment and machinery on a timely basis.	
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Process related documents, list of raw materials, tools, equipment and machinery, organizational documents, logbook, Sieves, Moisture Metre.	

Module 3: Set Up and Calibrate the Milling Equipment

Mapped to FIC/N1005, v2.0

Terminal Outcomes:

- Explain how to set up and calibrate grain milling equipment to ensure optimal functioning.

Duration (in hours): 05:00	**Duration (in hours): 10:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the working principles of equipment used in milling, such as blowers, separators, and screw conveyors. • Describe the calibration procedures for automatic measuring scales, screens, and standard weights used in milling. • Discuss the application and types of screens and sieves used for cleaning and grading in milling machines. • Elucidate the functionality and calibration of magnets and metal detectors in milling operations. • Determine the methods to inspect and maintain conveyors, elevators, and sieves for smooth operation. • Explain the proper lubrication techniques and frequency for milling equipment parts. • Discuss how to adjust and control conveyor and motor speeds to maintain wheat flow rates in milling.	• Demonstrate how to ensure all equipment is clean, free from infestation, and functioning properly. • Show how to calibrate automatic measuring scales using standard weights and measures. • Demonstrate how to examine screens/sieves for damage and set them up for cleaning, grading, and sieving machines. • Show how to check the cleaning and calibration of magnets and metal detectors according to the manufacturer's instructions. • Demonstrate how to adjust and control the speed of screw or chain conveyors and motors to maintain the wheat flow rate. • Show how to check the condition of bucket elevators, chain conveyors, and screw conveyors for any damage. • Demonstrate how to lubricate moving equipment parts using the recommended lubricants. • Show how to check the working condition of all sensors to maintain the flow rate. • Demonstrate how to set controls of blowers or suction fans to remove light impurities and dust particles from screens and sieves. • Show how to check for leaks in blowers or suction fans and ensure proper operation.
Classroom Aids	

Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films
Tools, Equipment and Other Requirements
De-stoner, Separator, De-Husker, Splitter, Whitener, Polisher, Blender, Pulverizer, Stone mill / Roller Mill, Plan sifter, Packaging Machines, Protective Gloves, Head Caps, Aprons, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual, Sieves, Moisture Metre, Aspirator, Scourer, Magnetic separator

Module 4: Carry out Pre-Processing, Processing and Post-Processing Activities of Wheat Milling

Mapped to FIC/N1005, v2.0

Terminal Outcomes:

- Explain the steps involved in the pre-processing of wheat before milling.
- Describe the wheat processing procedures and key stages in transforming wheat into flour.
- Discuss the post-processing activities required after wheat milling to ensure product quality and safety.
- Explain how to clean the work area, machinery, and tools using industry-approved cleaning procedures.

Duration (in hours): 30:00	**Duration (in hours): 40:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe how to adjust blowers or suction fans to remove impurities, dust, and light materials from wheat effectively. • Explain the processes of using winnowing machines, blowers, and separators to clean wheat by removing chaff, soil, and stones. • Discuss the importance of wheat grading techniques and how wheat size impacts the milling process. • Explain the significance of inspecting fumigated wheat for infestations and the corrective measures taken for live infestations. • Describe the sampling procedures and in-process testing of wheat for quality checks according to SOPs. • Elucidate the common contaminants and food safety hazards during wheat cleaning, and control measures to prevent contamination. • Explain the stone removal process using de-stoner machines and how to set them for optimal efficiency. • Describe the techniques for soaking, conditioning, and tempering wheat, including the role of water baths, temperature, and conditioning duration. • Discuss how to monitor and adjust water level, inflow, outflow, and temperature	• Demonstrate how to use a winnowing machine to clean wheat by removing impurities like chaff, soil, and dirt. • Show how to grade wheat based on size using various methods. • Demonstrate how to inspect fumigated wheat for live infestations and take corrective measures. • Show how to collect in-process samples and transfer them for quality testing. • Demonstrate how to remove stones from wheat using a de-stoner machine in preparation for washing. • Show how to control water bath, soaking, conditioning, and tempering processes for wheat. • Demonstrate how to monitor water levels, temperature, and inflow/outflow rates during the wheat washing process. • Show how to dry wheat using drying equipment like solar or batch dryers. • Demonstrate how to adjust temperature, pressure, and speed in dryers to maintain optimal wheat moisture content. • Show how to regulate grain flow into dryers by adjusting dryer valves. • Demonstrate how to remove husks by adjusting roller speed, clearance, and emery size. • Show how to separate de-husked wheat

during wheat washing.

- Explain the operation of dryers and key settings (temperature, pressure, and speed) required to maintain wheat moisture content.
- Determine how to adjust dryer valves to control the flow of parboiled wheat.
- Explain the techniques for removing husks from wheat by adjusting roller speed, clearance, and emery size.
- Describe the methods for separating de-husked wheat using aspirators and controlling fan speed for efficient separation.
- Discuss the cooling and bran removal process using controlled air pressure.
- Describe the wheat grading system and the role of graders in assessing quality parameters.
- Explain how sifters are used to remove broken wheat and the recommended vibration speeds for different types of wheat.
- Discuss the process of coordinating wheat sampling with quality labs for testing and analysis.
- Describe the requirements of the Legal Metrology Act, 2009, for establishing weights and measures in wheat milling.
- Explain the criteria for selecting appropriate packaging materials for wheat, such as HDPE, LDPE, and jute bags.
- Discuss the operation of packing machinery, including the setup of batch codes, date coding, and filling quantities.
- Describe the labelling procedures for wheat packaging in compliance with FSSAI regulations.
- Explain the methods for checking the weight of packed wheat to ensure compliance with standards.
- Describe the storage conditions required for packed wheat, focusing on temperature and humidity controls.
- Discuss the record-keeping procedures

by adjusting the aspirator fan speed.

- Demonstrate how to cool grain and remove bran using air pressure.
- Show how to grade processed grain and remove broken wheat using a sifter.
- Demonstrate how to remove hulls from grain using a decorticator or de-husker.
- Show how to collect processed grain samples and coordinate quality analysis with the lab.
- Demonstrate how the Legal Metrology Act, 2009, applies to setting weights and measures for grain.
- Show how to select appropriate packaging materials for milled grain according to organizational standards.
- Demonstrate how to pack milled grain using packing machinery and label it according to FSSAI regulations.
- Show how to check the weight of packed products to ensure compliance with standards.
- Demonstrate best practices for storing packed grain under recommended conditions.
- Show how to maintain accurate records of grain milling and post-production activities.
- Demonstrate the procedures for cleaning the work area and machinery using industry-approved methods like CIP and COP.
- Show how to perform basic repair and maintenance procedures for milling equipment to prevent breakdowns.
- Demonstrate how to follow the maintenance schedule for tools and equipment, as prescribed by the OEM.
- Show how to coordinate with OEMs for complex repairs and maintenance.
- Demonstrate the procedures for proper waste disposal during the grain milling process.

for wheat milling operations, including raw material records, production details, and quality control data. • Elucidate the techniques for controlling Operational Prerequisite Programs (OPRPs) and Critical Control Points (CCPs) in wheat milling. • Describe the industry-approved cleaning procedures (CIP and COP) for machinery and tools used in milling. • Discuss basic repair and maintenance techniques for milling equipment to prevent malfunctions. • Explain the waste disposal procedures for byproducts generated during wheat milling. • Elucidate the food safety risks associated with the cleaning process and the related control measures. • Explain the importance of food fraud prevention measures and various types of Prerequisite Programs (PRPs).	

Classroom Aids
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films

Tools, Equipment and Other Requirements
De-stoner, Separator, De-Husker, Splitter, Whitener, Polisher, Blender, Pulverizer, Stone mill / Roller Mill, Plan sifter, Packaging Machines, Protective Gloves, Head Caps, Aprons, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual, Sieves, Moisture Metre, Aspirator, Scourer, Magnetic separator

Module 5: Maintain the Work Area and Grain Milling Equipment

Mapped to FIC/N1007, v2.0

Terminal Outcomes:

- Explain how to carry out maintenance of the work area and grain milling equipment.

Duration (in hours): 20:00	**Duration (in hours)**: 40:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain proper cleaning techniques for the work area and equipment. • Discuss the safety guidelines to prevent accidents and ensure a safe working environment. • Describe the use of tools and equipment used for maintenance tasks. • Explain how to identify and resolve common issues that may arise during maintenance. • Describe how to identify and address potential safety hazards such as spills, clutter, or equipment malfunctions. • Discuss the proper disposal methods for waste products. • Explain the pest control measures to prevent infestations in grain storage and processing areas. • Describe the parts of the grain mill, such as hopper, grinding mechanism, collection bin, and motor. • Explain how to disassemble and reassemble the mill for thorough cleaning and maintenance. • Discuss how to clean, inspect, and maintain the grinding mechanism of the mill, such as burrs, stones, etc. • Explain which parts of the grain mill require lubrication and the type of lubricants to be used. • Describe basic electrical maintenance of electrical components of an electric grain mill. • Discuss the signs of wear and tear on components and when and how to replace them.	• Demonstrate maintaining a clean work area using approved sanitizers to keep it free from dust, waste, flies, and pests. • Show how to identify and address potential safety hazards like spills or misplaced items to ensure a well-ventilated and hygienic food processing environment. • Demonstrate organizing inventory to store grains and supplies properly, maintaining their quality and preventing contamination. • Show how to inspect storage areas for pests or moisture and manage issues according to health and safety guidelines to maintain optimal storage conditions. • Demonstrate proper disposal procedures for waste materials, ensuring compliance with industry requirements and environmental regulations. • Demonstrate how to disassemble the relevant parts of the grain mill as per the manufacturer's instructions and clean them appropriately. • Show how to check the power cord and motor of the electric mill for any signs of damage, and test the equipment's safety features to ensure their correct and effective functioning. • Demonstrate the procedure for cleaning the hopper, grinding mechanism, and collection bin after each use to remove any grain residue. • Show how to inspect the grinding plates or burrs for signs of wear and replace them if necessary. • Demonstrate the proper application of appropriate lubricants to moving parts of

• Explain the importance of following the manufacturer's maintenance guidelines and recommendations for the maintenance of a grain mill. • Describe the applicable documentation and record-keeping requirements for grain mill maintenance. • Discuss inventory management for maintenance supplies and replacement parts of the mill. • Explain the health and safety regulations pertaining to food processing and equipment maintenance. • Describe sanitation standards and best practices for maintaining a clean and safe work environment in a grain milling facility.	the grain mill as recommended by the manufacturer. • Show how to check and tighten any loose screws or bolts on the grain mill equipment. • Demonstrate the inspection process for identifying signs of damage or wear on all equipment in the work area. • Demonstrate how to identify and replace worn-out parts or parts that have reached the end of their recommended service life on the grain mill. • Show the process of coordinating with a professional for complex equipment repair and maintenance for the grain mill. • Demonstrate how to carry out appropriate upgrades in the equipment through coordination with the supervisor. • Show how to follow the equipment maintenance guidelines provided by the manufacturer for the grain mill. • Demonstrate how to maintain records of all maintenance activities for the grain mill, including dates and actions taken.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
De-stoner, Separator, De-Husker, Splitter, Whitener, Polisher, Blender, Pulverizer, Stone mill / Roller Mill, Plan sifter, Packaging Machines, Protective Gloves, Head Caps, Aprons, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual, Sieves, Moisture Metre, Aspirator, Scourer, Magnetic separator	

Module 6: Implement Personal Hygiene and Follow Good Manufacturing Practices

Mapped to FIC/N9906, v1.0

Terminal Outcomes:

- Discuss the importance of personal hygiene and GMP at the workplace
- Demonstrate the tasks to be performed for ensuring personal hygiene and GMP practices at the workplace.

Duration (in hours): 05:00	**Duration (in hours): 10:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Define hazards and risks. • Discuss 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 site relevant documented procedure for Personal Hygiene and Visitor/ Contractor rules. • Explain work instructions at levels of employee inside a food manufacturing site. • Discuss how to conduct timely planning and participation of relevant training and awareness sessions on personal hygiene, GMP and related topics. • Explain the importance of timely medical examination from a prescribed and authorized doctor and to comply with the guidelines of Schedule IV as described in Food Safety Standard Authority of India (FSSAI) guidelines. • State how to follow a site relevant documented procedure and area wise work instructions for Good Manufacturing Practices (GMP) to be followed on the site. • List validated Do's & Don'ts inside a food manufacturing firm. • State process flow charts, HACCP summary plan and critical process parameters in each and respective areas	• Demonstrate the steps to be performed for implementing good manufacturing practices (GMP). • Demonstrate how to follow work instructions at levels of employee inside a food manufacturing site and ensure that the relevant instructions are well communicated and being followed at the fixed timelines. • Show how to fill data in daily monitoring checklist related to personal hygiene, food safety and GMP. • Demonstrate the process to follow man and materials movement throughout the production facility, to restrict unwanted hazards to cross contaminate the products which are being manufactured in the facility. • Show how to tag and number all the equipment, machinery, tools, and other processing aids to keep a proper traceability of the product being manufactured and handled at site. • Demonstrate process of record keeping and documentation such as Daily Monitoring Sheets, Batch Traceability Records, machine records, product parameters, process control parameters etc.

of the production line. • Explain how to identify the material requirements such as manufacturing equipment's, Utensils and other processing aids, cleaning chemicals, cleaning work instructions in all the relevant areas of manufacturing facility. • Define the Allergens, their risks and the allergen requirements. • State the relevance of guidelines in manufacturing area and how training evaluation will be implemented. • Explain the process of audits and ways to address the aspects of Good Manufacturing Procedures, personal hygiene and food safety.	
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
GMP format and guidelines, allergen manual, personal hygiene guidelines, PPE Kits etc.	

Module 7: Apply Food Safety Practices at Workplace

Mapped to FIC/N9906, v1.0

Terminal Outcomes:

- List the food safety practices at the workplace and the ways to implement them.
- Demonstrate the steps to be followed to implement food safety procedures effectively.

Duration (in hours): 05:00	**Duration (in hours): 10:00**
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. • Explain requirements to maintain updated facilities, equipment and tool to minimize the risks associated with the products being handled at the site. • 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. • Discuss the significance of various types of hazard and safety signs. • Explain FSSAI Schedule IV requirements related to: Pest Control, Cleaning and Sanitation, Utilities, Waste Disposal, Prevention of Cross Contamination, allergen management, corrective action, preventive actions, food operation control etc. • Discuss the relevance of checking critical control points and product parameters. • Explain importance of record keeping and documentation such as daily monitoring sheets, cleaning sheets, parameters etc. • Discuss how to report any food safety and GMP issue to supervisor, if any.	• Show how to apply appropriate techniques to deal with hazards safely and appropriately. • Demonstrate the steps for checking critical control points and product parameters. • Show how to record keeping and documentation such as daily monitoring sheets, cleaning sheets, parameters etc. • Demonstrate appropriate ways to respond to an accident situation or medical emergency promptly and appropriately. • Demonstrate the steps to be followed during emergency and evacuation procedure.

Classroom Aids
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films
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 8: Employability Skills (30 Hours)

Mapped to DGT/VSQ/N0101, v1.0

Duration: 30:00

Key Learning Outcomes

Introduction to Employability Skills Duration: 1 Hour

After completing this programme, participants will be able to:

1. Discuss the importance of Employability Skills in meeting the job requirements

Constitutional values - Citizenship Duration: 1 Hour

2. Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen.

3. Show how to practice different environmentally sustainable practices

Becoming a Professional in the 21st Century Duration: 1 Hour

4. Discuss 21st-century skills.

5. Display a positive attitude, self-motivation, problem-solving, time management skills and continuous learning mindset in different situations.

Basic English Skills Duration: 2 Hours

6. Use appropriate basic English sentences/phrases while speaking

Communication Skills Duration: 4 Hours

7. Demonstrate how to communicate in a well-mannered way with others.

8. Demonstrate working with others in a team

Diversity & Inclusion Duration: 1 Hour

9. Show how to conduct oneself appropriately with all genders and PwD

10. Discuss the significance of reporting sexual harassment issues in time

Financial and Legal Literacy Duration: 4 Hours

11. Discuss the significance of using financial products and services safely and securely.

12. Explain the importance of managing expenses, income, and savings.

13. Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws

Essential Digital Skills Duration: 3 Hours

14. Show how to operate digital devices and use the associated applications and features, safely and securely

15. Discuss the significance of using the internet for browsing, and accessing social media platforms, safely and securely

Entrepreneurship Duration: 7 Hours

16. Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges

Customer Service Duration: 4 Hours

17. Differentiate between types of customers

18. Explain the significance of identifying customer needs and addressing them

19. Discuss the significance of maintaining hygiene and dressing appropriately

Getting ready for Apprenticeship & Jobs Duration: 2 Hours

20. Create a biodata

21. Use various sources to search and apply for jobs

22. Discuss the significance of dressing up neatly and maintaining hygiene for an interview

23. Discuss how to search and register for apprenticeship opportunities

Module 9: Carry out Pre-Milling and Milling of Rice

Mapped to FIC/N1028, v2.0

Terminal Outcomes:

- Explain the process of pre-milling preparation and parboiling in rice processing and its importance for quality output.
- Describe the steps involved in rice milling and processing and the key parameters that influence the final product quality.

Duration (in hours): 20:00	**Duration (in hours): 40:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the basic operating principles of milling equipment such as separators, destoners, gravity selectors, and others used in rice processing. • Discuss the calibration procedures for standard weights and measures in rice milling, as well as the types of screens and sieves utilized in the process. • Describe the moisture control techniques specific to rice milling, including methods for managing moisture during drying and parboiling. • Elucidate the process of parboiling paddy, focusing on soaking, steaming, and drying procedures necessary for starch gelatinization and moisture maintenance. • Determine the factors influencing the color and texture improvement of milled rice and how to operate polishing and whitening equipment for enhanced appearance. • Explain the adjustments required for water bath controls during the soaking of paddy in the parboiling process. • Discuss the necessary temperature and pressure controls for steam gelatinization of starch in soaked paddy. • Describe the relevant drying techniques used in rice milling, including the settings for continuous flow and batch dryers to achieve the desired moisture level. • Explain the operation of husker machines in effectively removing husk from	• Demonstrate how to grade and clean paddy using machines like winnowers and graders to remove impurities. • Show how to adjust water bath controls to soak paddy for the recommended duration during parboiling. • Demonstrate how to maintain the correct temperature and pressure of the steam by adjusting water bath valves. • Show how to pass steam through soaked paddy to gelatinize starch for parboiled rice. • Demonstrate how to dry parboiled rice using a dryer at the appropriate temperature and airspeed. • Show how to remove stones from paddy using de-stoner machines before milling. • Demonstrate how to remove husk from parboiled rice using husker machines. • Show how to transfer brown rice to a water polisher and adjust water and airflow for polishing. • Demonstrate how to inspect and replace polisher rollers to ensure uniformity in the product. • Show how to transfer polished rice to the whitener for final whitening. • Demonstrate how to feed white rice into the hopper to control the quantity entering the milling machinery. • Show how to spread grains evenly on grinding rollers to maintain consistent quality.

parboiled and raw rice. • Elucidate the operations of water polishers, including how to adjust air and water flow for consistent rice polishing. • Discuss the maintenance of polisher rollers, including inspection and replacement procedures for ensuring uniform product quality. • Describe the rice whitening processes, focusing on the use of whiteners to achieve the desired polished rice appearance.	• Demonstrate how to operate roller mills to reduce the size of processed grains. • Show how to adjust roller clearance and speed to achieve optimal fineness and yield. • Demonstrate how to separate broken rice from whole grains using sifters or graders at the correct settings.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
De-stoner, Separator, De-Husker, Splitter, Whitener, Polisher, Blender, Pulverizer, Stone mill / Roller Mill, Plan sifter, Packaging Machines, Protective Gloves, Head Caps, Aprons, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual, Sieves, Moisture Metre, Aspirator, Scourer, Magnetic separator	

Module 10: Carry out Post-Milling Quality Control and Storage of Rice

Mapped to FIC/N1028, v2.0

Terminal Outcomes:

- Describe the key steps involved in performing post-milling quality control to ensure the final product meets standards.

Duration (in hours): 10:00	**Duration (in hours): 20:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the roller mill operations, including clearance and speed adjustments for grinding rice grains to the desired size. • Discuss techniques for separating broken rice from whole grains using sifters or graders. • Describe the quality testing parameters for milled rice and how to coordinate with the quality lab for inspections. • Elucidate the appropriate storage conditions for milled rice, focusing on humidity and temperature control. • Determine safety protocols for handling and operating rice milling machinery to prevent accidents. • Explain rice packaging techniques, including FFS (form-fill-seal) machine operations and maintenance. • Discuss printing techniques in packaging, including common errors and their corrections. • Describe the use of colour sorters to separate discoloured or defective rice grains. • Elucidate the process for testing moisture content in rice before and after milling. • Explain the role of aspirators and blowers in removing impurities during milling.	• Demonstrate how to remove chaff and inspect the milled rice yield for quality and consistency. • Show how to coordinate the quality analysis of milled rice with the quality-testing lab. • Demonstrate how to test the moisture content of milled rice to ensure it meets storage requirements. • Show how to store the milled rice under the recommended conditions for further processing or packaging. • Demonstrate how to select and operate appropriate packaging machinery to pack milled rice according to organizational standards. • Show how to ensure packed rice is labelled with the necessary information according to applicable regulations.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	

De-stoner, Separator, De-Husker, Splitter, Whitener, Polisher, Blender, Pulverizer, Stone mill / Roller Mill, Plan sifter, Packaging Machines, Protective Gloves, Head Caps, Aprons, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual, Sieves, Moisture Metre, Aspirator, Scourer, Magnetic separator

Module 11: Carry out Pre-processing & Wet Milling of Pulses

Mapped to FIC/N1027, v2.0

Terminal Outcomes:

- Explain the grading process of pulses for effective pre-processing.
- Demonstrate the inspection and cleaning of milling equipment.
- Discuss the steps involved in wet milling pulses.

Duration (in hours): 15:00	**Duration (in hours): 15:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the physical characteristics of pulses, including size, shape, and moisture content, and discuss how to grade them accordingly. • Discuss the chemical properties affecting pulses, including their composition and potential rancidity issues. • Identify the biological factors influencing pulse quality, such as germination and infestation. • Describe the inspection and cleaning procedures for milling equipment, including splitters, polishers, and mills, to ensure readiness for processing. • Explain the basic operating principles of milling equipment, including components, capacities, and applications. • Discuss the operating principles of abrasive roller machines and their role in pitting pulses effectively. • Explain the calibration procedures for standard weights and measures used in the milling process. • Describe the types of screens and sieves used in pulse milling machines and their significance. • Discuss the significance of using cleaners and graders in the milling processes to enhance quality. • Explain the implications of soaking, conditioning, and tempering pulses for optimal milling outcomes. • Identify the pulse soaking parameters, including duration, water level,	• Demonstrate how to grade pulses based on physical, chemical, and biological characteristics. • Show the inspection and cleaning of milling equipment such as splitters, polishers, and mills, ensuring readiness for processing. • Demonstrate the setting and adjustment of controls on splitter machines, including rotary blade rotation, for effective splitting of de-husked pulses. • Show the operation of the abrasive roller machine to pit pulses, facilitating effective water absorption during soaking. • Demonstrate soaking pulses in a water bath, adjusting the water level, temperature, and flow rate according to recommended guidelines. • Demonstrate drying pulses under the sun for the recommended duration to achieve the desired moisture content. • Show the removal of red earth from dried pulses using an appropriate sieve, ensuring minimal loss. • Demonstrate the operation and adjustment of the husker machine to efficiently remove the husk from pulses. • Show the splitting of de-husked pulses by adjusting the splitter's blade rotation and speed according to processing needs. • Demonstrate the operation of the polisher machine, adjusting settings to effectively peel off the bran.

temperature, and flow rate, and their importance for effective milling. • Discuss the temperature control and mixing techniques with red earth to achieve the desired results. • Explain the drying techniques and moisture level targets necessary for pulses after the wet milling process.	

Classroom Aids
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films

Tools, Equipment and Other Requirements
De-stoner, Separator, De-Husker, Splitter, Whitener, Polisher, Blender, Pulverizer, Stone mill / Roller Mill, Plan sifter, Packaging Machines, Protective Gloves, Head Caps, Aprons, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual, Sieves, Moisture Metre, Aspirator, Scourer, Magnetic separator

Module 12: Carry out Dry Milling of Pulses

Mapped to FIC/N1027, v2.0

Terminal Outcomes:

- Demonstrate the dry milling process of pulses to achieve the desired product quality.

Duration (in hours): 15:00	**Duration (in hours): 15:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the operation of sieves and the importance of complete separation of red earth and husk during dry milling. • Discuss the appropriate roller adjustments, including speed, clearance, and emery size, to optimize husk removal. • Describe the use of aspirators for effectively separating de-husked pulses. • Explain the pitting procedures for pulses and their significance in preparation for oil soaking. • Identify the moisture measurement techniques and dryer controls essential for maintaining optimal conditions during dry milling. • Discuss the operation of polishers and sifting equipment for ensuring final product quality. • Discuss the cooling process of pulses. • Describe the separation process for broken pulses.	• Demonstrate the removal of husk from pulses by adjusting roller speed, clearance, and emery size on the husker for efficient operation. • Show the adjustment of aspirator fan speed to separate de-husked pulses effectively. • Demonstrate the pitting of pulses using the abrasive roller machine to prepare them for oil soaking. • Show how to soak and condition pulses, adjusting the water level, temperature, and flow rate in the water bath. • Demonstrate measuring and controlling moisture content in pulses, adjusting dryer controls for optimal processing conditions. • Show the splitting of dried pulses using the splitter machine, adjusting blade rotation to meet processing requirements. • Demonstrate the operation of polisher machines to peel bran from dried pulses, ensuring minimal loss and maintaining quality. • Show the cooling of pulses and the removal of peeled bran using suction fans or blowers, adjusting air stream as necessary. • Demonstrate the separation of broken pulses by adjusting sifter speed and selecting the appropriate sieve size.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	

Tools, Equipment and Other Requirements
De-stoner, Separator, De-Husker, Splitter, Whitener, Polisher, Blender, Pulverizer, Stone mill / Roller Mill, Plan sifter, Packaging Machines, Protective Gloves, Head Caps, Aprons, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual, Sieves, Moisture Metre, Aspirator, Scourer, Magnetic separator

Module 13: On-the-Job Training

Mapped to Grain Miller

Mandatory Duration: 30:00	Recommended Duration: 00:00
Location: On-Site	

Terminal Outcomes

- Show how to follow standard practices to plan for production.
- Show how to check the raw materials before milling.
- Demonstrate how to carry out milling of wheat.
- Show how to carry out post-production activities after milling.
- Demonstrate how to maintain the work area in a clean and organized manner.
- Show how to maintain the milling equipment to ensure smooth operation.
- Demonstrate the tasks to be performed for ensuring personal hygiene and GMP practices at the workplace.
- Demonstrate the food safety practices at the workplace and ways to implement them.
- Demonstrate the steps to be followed to implement food safety procedures effectively.
- Demonstrate how to carry out milling of rice effectively.
- Show how to carry out milling of pulses.

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialisation**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
M.Sc/M.Tech/M.E.	Food Technology or Food Engineering	2	Grain Milling	1	Training of Grain Miller	
B.Sc. or Graduate / B.Tech/ BE	Food Technology or Food Engineering	3	Grain Milling	1	Training of Grain Miller	
B.Sc.	Food Science and Quality Control	4	Grain Milling	1	Training of Grain Miller	
Diploma	Food Technology or Food Engineering	4	Grain Milling	1	Training of Grain Miller	
B.Sc.	Home Science	5	Grain Milling	1	Training of Grain Miller	
Diploma/ Certificate course	Grain Milling	5	Grain Milling	1	Training of Grain Miller	

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Grain Miller" mapped to QP: "FIC/Q7003, v4.0". Minimum accepted score is 80%.	Recommended that the Trainer is certified for the Job Role: "Trainer (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2601, v2.0". The minimum accepted score as per MEPSC guidelines is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
B.Tech/B.E./ B.Voc	Food Technology or Food Engineering/ Biotechnology/ Home science/ Crop Processing/Milling Processing	2	Grain Milling	1	Assessment of Grain Miller	

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Grain Miller" mapped to QP: "FIC/Q7003, v4.0". Minimum accepted score is 80%.	Certified for the Job Role: "Assessor (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2701, v2.0", with a minimum score of 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. There in 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 banks 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 (i)True/False Statements, (ii)Multiple Choice Questions, (iii)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 behavioural aspects as regards the job role and the specific task at hand.

On the Job:

1. Each module (which covers the job profile of Grain Miller) will be assessed separately.

2. The candidate must score 50% in each module to successfully complete the OJT.

3. Tools of Assessment that will be used for assessing whether the candidate is having desired skills and etiquette of dealing with customers, understanding needs & requirements, assessing the customer and perform Soft Skills effectively:

- Videos of Trainees during OJT
- Answer Sheets of Question Banks
- Assessing the Logbook entries of Trainees at Employer location
- Employer Performance Feedback.

4. Assessment of each Module will ensure that the candidate is able to:

- Prepare for production in food processing.

- Carry out milling of wheat.
- Maintain cleanliness and upkeep of the work area and grain mill.
- Implement food safety guidelines in food processing.
- Develop employability skills to work effectively.
- Carry out milling of rice.
- Carry out milling of pulses.

References

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 it 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
NCVET	National Council for Vocational Education and Training
FICSI	Food Industry Capacity & Skill Initiative
QP	Qualification Pack
MC	Model Curriculum
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
NCO	National Classification of Occupations
ES	Employability Skills
HACCP	Hazard Analysis and Critical Control Points
FSSAI	Food Safety and Standards Authority of India
GMPs	Good Manufacturing Practices
PPE	Personal Protective Equipment
CIP	Clean-in-Place
COP	Clean-out-of-Place