



# Model Curriculum

**Standalone NOS: Introduction to Murabba and Chutney Processing and Packaging**

**NOS Code: FIC/N0216**

**Version: 1.0**

**NSQF Level: 3**

**Model Curriculum Version: 1.0**

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

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## Training Parameters

<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables
<b>Occupation</b>	Processing - Fruits & Vegetables
<b>Country</b>	India
<b>NSQF Level</b>	3
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/7514.1000
<b>Minimum Educational Qualification and Experience</b>	<ol style="list-style-type: none"> <li>10th Grade pass OR</li> <li>8<sup>th</sup> Grade pass with 3 years of relevant experience in Food Processing OR</li> <li>Previous relevant Qualification of NSQF Level 2.5 with 1.5 years of experience in Food Processing OR</li> <li>Previous relevant Qualification of NSQF Level 2 with 3 years of experience in Food Processing</li> </ol>
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	16 years
<b>Last Reviewed On</b>	18/02/2025
<b>Next Review Date</b>	17/02/2028
<b>NSQC Approval Date</b>	18/02/2025
<b>NOS Version</b>	1.0
<b>Model Curriculum Creation Date</b>	10/07/2024
<b>Model Curriculum Valid Up to Date</b>	17/02/2028
<b>Model Curriculum Version</b>	1.0
<b>Minimum Duration of the Course</b>	90 hours
<b>Maximum Duration of the Course</b>	90 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:

- Prepare for production of Murabba
- Use various techniques for production of Chutney
- Use specialized equipment and tools to produce Murabba and Chutney
- Perform sampling and evaluate the finished product on different parameters.
- Adhere to necessary health and safety practices to ensure food safety and personal hygiene

### 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>FIC/N0216: Introduction to Murabba &amp; Chutney Processing and NOS Version No.:1.0 NOS Level: 3</b>	<b>30:00 Hours</b>	<b>60:00 Hours</b>	<b>00:00 Hours</b>	<b>00:00 Hours</b>	<b>90:00 Hours</b>
Module 1: Prepare for production	03:00 Hours	05:00 Hours	00:00 Hours	00:00 Hours	08:00 Hours
Module 2: Processing of Murabba	10:00 Hours	25:00 Hours	00:00 Hours	00:00 Hours	35:00 Hours
Module 3: Processing of Chutney	10:00 Hours	25:00 Hours	00:00 Hours	00:00 Hours	35:00 Hours
Module4: Food Safety Practices	04:00	05:00	00:00	00:00	09:00
Module5: Basics of Entrepreneurial skills	03:00	00:00	00:00	00:00	03:00
<b>Total Duration</b>	<b>30:00 Hours</b>	<b>60:00 Hours</b>	<b>00:00 Hours</b>	<b>00:00 Hours</b>	<b>90:00 Hours</b>

# Module Detail

## Module 1: Prepare for production

*Mapped to FIC/N0216 v 1.0*

### Terminal Outcomes:

- Discuss the standard practices to be followed for production
- Demonstrate the tasks to be performed at the workplace for planning the production

Duration: 03:00	Duration: 05:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>• Elucidate production planning process.</li> <li>• Discuss analysis and interpretation of various process charts, product flow charts, etc.</li> <li>• Explain the resource management, Vendor and supplier Approvals and timely audits”.</li> <li>• List down equipment type and its use.</li> <li>• Explain the capacity utilization calculation.</li> <li>• Discuss the organizational policies and SOP on cleaning and housekeeping</li> <li>• List down the basic concept of food safety and hygiene.</li> <li>• Describe the operating procedure and general maintenance of food production machineries.</li> <li>• State waste management procedures.</li> <li>• List down the methods to inspect tools, equipment and machinery.</li> <li>• Discuss the procedure to allot work or responsibility to the team.</li> </ul>	<ul style="list-style-type: none"> <li>• Apply work requirements by obtaining instructions from the supervisor.</li> <li>• Instructions: process chart, product flow chart, formulation, chart, etc.</li> <li>• Prepare, plan and prioritize tasks as per work schedule Tasks: inspect, clean, maintain, verify the area and tools, etc.</li> <li>• Calculate the manpower and material requirements as per work requirement Material: raw materials and packaging materials.</li> <li>• Show the required quantity of raw materials, packaging materials, equipment, and manpower for production.</li> <li>• Demonstrate capacity utilization of machinery with respect to the processing time, production order, and batch size for each product.</li> <li>• Perform cleaning and maintain the work area as per organizational procedures.</li> <li>• Perform cleaning and maintain the machines and tools and sanitize them as per the organization's specifications and standards.</li> <li>• Show disposal of the waste material</li> </ul>

	<p>at designated place safely.</p> <ul style="list-style-type: none"> <li>• Display the tools, equipment, and machinery to ascertain suitability for use.</li> <li>• Conduct role play to report information such as faulty tools and equipment to the concerned authority.</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>	
Process related documents, list of raw materials, tools, equipment and machinery, organizational documents, and logbook.	

## Module 2: Processing of Murabba

### Mapped to FIC/N0216 v 1.0

#### Terminal Outcomes:

- Discuss the process for preparing different types of Murabba
- Demonstrate the standard work practices followed to produce various types of Murabba

<i>Duration: 10:00</i>	<i>Duration: 25:00</i>
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>• Discuss the fruits ideal for murabba (ripeness, firmness, and color).</li> <li>• Explain the Criteria for fruit selection, including quality indicators (freshness, size, maturity).</li> <li>• Discuss the Techniques for cleaning and preparing fruits, including the benefits of blanching and soaking.</li> <li>• Discuss the Importance of sugar syrup in murabba preservation and flavor.</li> <li>• Recall the procedure of sampling to test the water quality and verify the water level</li> <li>• Explain the Consistency levels in sugar syrups: single-thread and two-thread, and their significance.</li> <li>• Discuss the Common issues in syrup preparation (e.g., crystallization) and troubleshooting.</li> <li>• Discuss the different types, roles, and benefits of automated machinery used in Murabba making, including filling machines, sealing equipment, labeling machines, and conveyor systems.</li> <li>• Explain the basic principles of operation for each type of automated machine used in Murabba.</li> <li>• Discuss Cooking techniques for murabba, including heating, stirring, and controlling consistency.</li> <li>• Discuss Indicators of doneness, such as fruit translucency and syrup thickness.</li> <li>• Explain Texture testing methods for fruits in murabba.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate the standard procedure for rinsing and drying the fruits</li> <li>• Show how to check the quality and level of water before washing the fruits and vegetables</li> <li>• Perform blanching of Fruits.</li> <li>• Measure and prepare sugar syrup to specified consistency.</li> <li>• Cook fruits in sugar syrup, achieving the translucent appearance.</li> <li>• Test syrup thickness and adjusting cooking times.</li> <li>• Perform Quality assessment exercises, including color and flavor checks.</li> <li>• Perform sugar concentration testing and interpretation.</li> <li>• Demonstrate jar sterilization, filling, and sealing.</li> <li>• Perform Labeling exercises, including production and expiration dates.</li> <li>• Practice setting up and operating filling machines, sealing equipment, labeling machines, and conveyor systems.</li> <li>• Practice identifying and handling the key components, sensors, actuators, and control systems in automated machinery.</li> <li>• Show how to use a peeling machine.</li> <li>• Illustrate the process of peeling and slicing using appropriate machines.</li> <li>• Demonstrate how to analyze the quality of the finished product as per the standards of the organization</li> </ul>

<ul style="list-style-type: none"> <li>• Discuss the Key quality parameters: appearance, flavor, texture, and sugar concentration.</li> <li>• Explain Methods for testing sweetness and preservation potential through sugar concentration.</li> <li>• Discuss the Importance of sterilization in packaging.</li> <li>• Discuss different Techniques for safe filling and sealing.</li> <li>• Discuss Regulatory requirements for labeling and traceability information.</li> <li>• Discuss Environmental factors that impact murabba shelf-life (temperature, humidity).</li> <li>• Discuss Signs of spoilage and quality degradation (e.g., color changes, off-flavors).</li> <li>• Describe the operation of a peeling machine</li> <li>• Explain the mechanism of slicing fruits</li> <li>• Explain the packaging and postproduction activities.</li> <li>• Describe the principles and procedures for CIP and COP in the context of Murabba</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate the various steps that are performed for packaging the Murabba</li> <li>•</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>	
Water tank, salinometer, container, filling machine, raw ingredients, storage tank, packaging machines, sterilized packing material, cartons, protective gloves, head caps, aprons, safety goggles, safety boots, mouth masks, various types of sanitisers and disinfectants, trash bins for waste material disposal, equipment for cleaning, procedural manual for reference	



## Module 3: Processing of Chutney

### Mapped to FIC/N0216 v 1.0

#### Terminal Outcomes:

- Discuss the process for preparing different types of Murabba
- Demonstrate the standard work practices followed to produce various types of Murabba

<i>Duration: 10:00</i>	<i>Duration: 25:00</i>
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>• Discuss suitable chutney ingredients and their specific flavor profiles.</li> <li>• Discuss the Types of fruits and vegetables suitable for chutneys, freshness indicators, and sourcing methods.</li> <li>• Explain the Role of spices and acidic agents in flavor and preservation.</li> <li>• Discuss different textures in chutney (smooth, coarse) and the equipment used for blending.</li> <li>• Explain the Importance of balancing spices for flavor consistency.</li> <li>• Discuss the Cooking temperatures and pasteurization processes for chutney.</li> <li>• Discuss Preservation agents in chutney and their impact on flavor and shelf life.</li> <li>• Explain different Parameters for chutney quality (flavor, acidity, consistency).</li> <li>• Discuss and Understand pH levels for product preservation and food safety.</li> <li>• Discuss the Importance of sterilization and hot-filling techniques to prevent spoilage.</li> <li>• Explain Safe sealing methods and food safety protocols.</li> <li>• Discuss Labeling regulations, including ingredient lists, batch numbers, and expiry dates.</li> <li>• Discuss Optimal storage conditions for chutney to prevent spoilage.</li> <li>• Explain Methods for quality monitoring over time and identifying signs of degradation.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate the standard procedure for rinsing and drying the fruits</li> <li>• Show how to check the quality and level of water before washing the fruits and vegetables</li> <li>• Show how to select and prepare ingredients.</li> <li>• Measure and adjust spices, salt, and acidic agents as per recipe specifications.</li> <li>• Grind and blend ingredients to specified consistencies.</li> <li>• Cook chutney to achieve the right texture and consistency.</li> <li>• Stir Chutney using different techniques to prevent burning and ensure even cooking.</li> <li>• Add and adjust preservatives as per the recipe.</li> <li>• Perform Flavor assessment exercises, including adjusting acidity and spice.</li> <li>• Test pH to ensure safe acidity levels.</li> <li>• Check Texture and consistency to confirm product specifications.</li> <li>• Demonstrate of container sterilization and hot-filling techniques.</li> <li>• Perform Sealing and labeling exercises, with a focus on regulatory compliance.</li> <li>• Perform Quality assessment over time, including taste tests and spoilage detection.</li> </ul>

<ul style="list-style-type: none"> <li>Describe the principles and procedures for CIP and COP in the context of Murabba</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>	
Water tank, packaging machines, sterilized packing material, cartons, protective gloves, head caps, aprons, safety goggles, safety boots, mouth masks, various types of sanitisers and disinfectants, trash bins for waste material disposal, equipment for cleaning, procedural manual for reference	

## Module 4: Food Safety Practices

### Mapped to FIC/N0216 v 1.0

#### Terminal Outcomes:

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

Duration: 04:00	Duration: 05:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<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 site-relevant documented procedures for Personal Hygiene and Visitor/ Contractor rules</li> <li>• Explain work instructions at levels of employees inside a food manufacturing site</li> <li>• Ensure timed planning and participation in relevant training and awareness sessions on personal hygiene, GMP and related topics</li> <li>• 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</li> <li>• 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</li> <li>• List validated Do's &amp; Don'ts inside a food manufacturing firm</li> <li>• State process flow charts, HACCP summary plan and critical process parameters in each and respective areas of the production line</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate the steps to be performed for implementing good manufacturing practices (GMP)</li> <li>• 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</li> <li>• Show how to fill data in daily monitoring checklist related to personal hygiene, food safety and GMP</li> <li>• Illustrate 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</li> <li>• 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</li> <li>• Demonstrate process of record keeping and documentation such as Daily Monitoring Sheets, Batch Traceability Records, machine records, product parameters, process control parameters etc.</li> </ul>

<ul style="list-style-type: none"> <li>• 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</li> <li>• Define the Allergens, their risks and the allergen requirements</li> <li>• State the relevance of guidelines in manufacturing area and how training evaluation will be implemented</li> <li>• Explain the process of audits and ways to address the aspects of Good Manufacturing Procedures, personal hygiene and food safety</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>	
GMP format and guidelines, allergen manual, personal hygiene guidelines, etc.	

## Module 5: Basics of Entrepreneurial Skills

### Mapped to FIC/N0206 v 1.0

#### Terminal Outcomes:

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

<b>Duration: 05:00</b>	
<b>Theory – Key Learning Outcomes</b>	
<ul style="list-style-type: none"> <li>• Discuss the importance of Employability Skills in meeting the job requirements.</li> <li>• Explain constitutional values, civic rights, duties, citizenship, responsibility towards society, etc. that are required to be followed to become a responsible citizen.</li> <li>• Discuss 21st-century skills.</li> <li>• Display a positive attitude, self-motivation, problem-solving, time management skills, and continuous learning mindset in different situations.</li> <li>• Discuss the significance of reporting sexual harassment issues in time</li> <li>• Discuss the significance of using financial products and services safely and securely.</li> <li>• Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws</li> <li>• Explain the importance of managing expenses, income, and savings.</li> <li>• Discuss the significance of using the internet for browsing, and accessing social media platforms, safely and securely</li> <li>• Discuss the need for identifying opportunities for potential</li> </ul>	

business, sources for arranging money, and potential legal and financial challenges <ul style="list-style-type: none"> <li>• Differentiate between types of customers</li> <li>• Explain the significance of identifying customer needs and addressing them</li> <li>• Discuss the significance of maintaining hygiene and dressing appropriately</li> <li>• Discuss the significance of dressing up neatly and maintaining hygiene for an interview</li> <li>• Discuss how to search and register for apprenticeship opportunities</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>	
Computer/laptop.	

# Annexure

## Trainer Requirements

Trainer Prerequisites							
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks	
		Years	Specialization	Years	Specialization		
B.Sc graduate/B.Tech/BE or	Food technology or food engineering	3	Food processing	1	Food processing		
M.Sc/M.Tech/ME	Food technology or food engineering	2	Food processing	1	Food processing		
Diploma /certificate course	(Food Technology / Food Engineering /packaging/Home science, or allied sector	4	Food processing	1	Food processing		

Trainer Certification	
Domain Certification	Platform Certification
Certified for NOS: "Introduction to Murabba & Chutney Processing & Packaging" mapped to QP: "FIC/Q0216, v1.0". The minimum accepted score is 80%.	Recommended that the Trainer is certified for the Job Role: "Trainer", mapped to the Qualification Pack: "MEP/Q2601". The minimum accepted score as per MEPSC guidelines is 80%.

## Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Experience	Industry	Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
M.Sc/M.Tech/ME	Food technology or food engineering	2	Food processing	1	Food processing	
B.Sc or graduate/B.Tech/BE	Food technology/ Home Science	3	Food processing	2	Food processing	
Diploma	Hotel management/ Food Science/ Home Science	4	Food processing	2	Food processing	

Assessor Certification	
Domain Certification	Platform Certification
Certified for NOS: "Introduction to Murabba & Chutney Processing & Packaging" mapped to QP: "FIC/Q0216, v1.0". The minimum accepted score is 80%.	"Trainer", "MEP/Q2601, V1.0" with a scoring of minimum 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 (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 behavioral 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 <b>upon the completion of the training</b> .
<b>Terminal Outcome</b>	Terminal outcome is a statement of what a learner will know, understand and be able to do <b>upon the completion of a module</b> . A set of terminal outcomes help to achieve the training outcome.

## Acronyms and Abbreviations

Term	Description
<b>QP</b>	Qualification Pack
<b>NSQF</b>	National Skills Qualification Framework
<b>NSQC</b>	National Skills Qualification Committee
<b>NOS</b>	National Occupational Standards
<b>FIFO</b>	First In First Out
<b>FEFO</b>	First Expire First Out
<b>GMP</b>	Good Manufacturing Practices
<b>GHP</b>	Good Hygiene Practices
<b>CPR</b>	Cardiopulmonary Resuscitation