

## Qualification Pack



# Multi Skill Technician (Food Processing)

QP Code: FIC/Q9007

Version: 3.0

NSQF Level: 4

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## Qualification Pack

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## Qualification Pack

### FIC/Q9007: Multi Skill Technician (Food Processing)

#### Brief Job Description

A Multi Skill Technician (Food Processing) is responsible for performing various activities related to food processing, such as sorting, grading, cleaning, processing and canning of various types of fruits and vegetables to produce pickle, jam, jelly, squash, ketchup and juices. The person may also produce spice products and baked products like cookies. The responsibilities also include relevant maintenance activities, e.g. the maintenance of tools and equipment.

#### Personal Attributes

The individual should be physically fit to work for long durations. The person should be able to plan, organize, prioritize, handle pressure and solve problems. In addition, the individual should have appropriate verbal and written communication skills to communicate effectively.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [FIC/N9026: Prepare for production](#)
2. [FIC/N0103: Produce Squash and Juice](#)
3. [FIC/N0209: Produce a variety of pickles](#)
4. [FIC/N0210: Carry out production of jam, jelly and ketchup](#)
5. [FIC/N0118: Dry/ Dehydrate fruits and vegetables](#)
6. [FIC/N0122: Produce fruit pulp from various fruits](#)
7. [FIC/N0129: Sort, grade, pack and store the produce](#)
8. [FIC/N5022: Carry out biscuit production in industrial units](#)
9. [FIC/N8517: Carry out production of spices, curry powder and seasonings](#)
10. [FIC/N9906: Apply food safety guidelines in Food Processing](#)
11. [DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)

#### Qualification Pack (QP) Parameters

### Qualification Pack

<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables, Bread and Bakery, Packaged Foods
<b>Occupation</b>	Processing-Fruits and Vegetables, Processing-Packaged Foods, Processing-Bread and Bakery
<b>Country</b>	India
<b>NSQF Level</b>	4
<b>Credits</b>	29
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/8160.2300,2400,3200,7514.1000, 0700, 7512.0100
<b>Minimum Educational Qualification &amp; Experience</b>	12th grade Pass OR Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma OR 10th grade pass with 2 Years of experience relevant experience in food processing OR 8th grade pass with 6 Years of experience relevant experience in food processing OR Previous relevant Qualification of NSQF Level (3) with 3 Years of experience relevant experience in food processing OR Previous relevant Qualification of NSQF Level (3.5) with 1.5 years of experience relevant experience in food processing
<b>Minimum Level of Education for Training in School</b>	8th Class
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	NA
<b>Next Review Date</b>	22/10/2027
<b>NSQC Approval Date</b>	22/10/2024
<b>Version</b>	3.0
<b>Reference code on NQR</b>	QG-04-FI-03237-2024-V3-FICSI

## Qualification Pack

**NQR Version**

3.0

## Qualification Pack

### FIC/N9026: Prepare for production

#### Description

This NOS unit is about performing various tasks prior to production in the food processing industry.

#### Scope

The scope covers the following :

- Plan for production
- Clean and maintain work area, machineries, and tools for production
- Organize for production

#### Elements and Performance Criteria

##### *Plan for production*

To be competent, the user/individual on the job must be able to:

- PC1.** identify work requirements by obtaining instructions from the supervisor. Instructions: process chart, product flow chart, formulation, chart, etc.
- PC2.** plan and prioritize tasks as per work schedule. Tasks: inspect, clean, maintain, verify, etc.
- PC3.** estimate manpower and material requirements as per work requirement. Material: raw materials and packaging materials
- PC4.** ensure required quantity of raw materials, packaging materials, equipment, and manpower for production
- PC5.** plan capacity utilization of machinery with respect to the processing time, production order, and batch size for each product

##### *Clean and maintain work area, machineries, and tools for production*

To be competent, the user/individual on the job must be able to:

- PC6.** clean and maintain the work area as per organizational procedures
- PC7.** clean and maintain the machines and tools and sanitize them as per the organization's specifications and standards
- PC8.** dispose of the waste material at designated place safely. Waste material: hazardous waste, food waste, packaging waste, etc.
- PC9.** inspect the tools, equipment, and machinery to ascertain suitability for use
- PC10.** report information such as faulty tools and equipment to the concerned authority

##### *Organize for production*

To be competent, the user/individual on the job must be able to:

- PC11.** organize tools and equipment
- PC12.** receive and organize production materials appropriately. Production materials: raw materials, packaging materials, etc.
- PC13.** allot responsibilities/work to the assistants and helpers

#### Knowledge and Understanding (KU)

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The individual on the job needs to know and understand:

- KU1.** production planning process
- KU2.** analysis and interpretation of various process charts, product flow charts, etc.
- KU3.** resource management process
- KU4.** procedure to estimate manpower and raw material
- KU5.** capacity utilization calculation
- KU6.** organizational policies and SOP on cleanliness
- KU7.** operating procedure and general maintenance of food production machineries
- KU8.** waste management procedures
- KU9.** methods to inspect tools, equipment and machinery
- KU10.** procedure to allot work or responsibility to the team

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** read and interpret organizational policies, SOP, production charts, etc.
- GS2.** communicate effectively with subordinates as well as supervisors
- GS3.** plan and prioritize various tasks
- GS4.** be always punctual and courteous
- GS5.** organize all process/equipment manuals to access information easily
- GS6.** discuss task lists, schedules, and activities with the senior/supervisor

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Plan for production</i>	<b>11</b>	<b>25</b>	-	-
<b>PC1.</b> identify work requirements by obtaining instructions from the supervisor. Instructions: process chart, product flow chart, formulation, chart, etc.	3	6	-	-
<b>PC2.</b> plan and prioritize tasks as per work schedule.Tasks: inspect, clean, maintain, verify, etc.	2	5	-	-
<b>PC3.</b> estimate manpower and material requirements as per work requirement. Material: raw materials and packaging materials	2	4	-	-
<b>PC4.</b> ensure required quantity of raw materials, packaging materials, equipment, and manpower for production	2	5	-	-
<b>PC5.</b> plan capacity utilization of machinery with respect to the processing time, production order, and batch size for each product	2	5	-	-
<i>Clean and maintain work area, machineries, and tools for production</i>	<b>14</b>	<b>32</b>	-	-
<b>PC6.</b> clean and maintain the work area as per organizational procedures	3	7	-	-
<b>PC7.</b> clean and maintain the machines and tools and sanitize them as per the organization's specifications and standards	3	7	-	-
<b>PC8.</b> dispose of the waste material at designated place safely. Waste material: hazardous waste, food waste, packaging waste, etc.	3	7	-	-
<b>PC9.</b> inspect the tools, equipment, and machinery to ascertain suitability for use	3	6	-	-
<b>PC10.</b> report information such as faulty tools and equipment to the concerned authority	2	5	-	-
<i>Organize for production</i>	<b>5</b>	<b>13</b>	-	-
<b>PC11.</b> organize tools and equipment	2	7	-	-



### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> receive and organize production materials appropriately. Production materials: raw materials, packaging materials, etc.	2	4	-	-
<b>PC13.</b> allot responsibilities/work to the assistants and helpers	1	2	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N9026
<b>NOS Name</b>	Prepare for production
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Production
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	08/05/2025
<b>Next Review Date</b>	08/05/2028
<b>NSQC Clearance Date</b>	08/05/2025

## Qualification Pack

### FIC/N0103: Produce Squash and Juice

#### Description

This unit is about producing fruit juice and squash as per the applicable food safety standards.

#### Scope

The scope covers the following :

- The scope covers the following:
- Receive, wash, sort and slice fruits
- Extract fruit juice
- Pasteurize fruit juice
- Clarify fruit juice
- Prepare squash
- Fill, pack and store juice and squash
- Carry out the post production activities

#### Elements and Performance Criteria

##### *Receive, wash, sort and slice fruits*

To be competent, the user/individual on the job must be able to:

- PC1.** check the weight and quality of the fruits received from the supplier/vendor based on appearance, colour, texture, maturity, etc.
- PC2.** wash fruits using water to remove dirt, soil and other impurities from fruits
- PC3.** rinse fruits by spraying fresh water on them at the recommended pressure
- PC4.**
  - examine and remove damaged, blemished and rotten fruits, and dispose of them following the
  - standard procedure
- PC5.** cut/grate fruits to the required size and collect the sliced/grated fruits hygienically for further processing

##### *Extract fruit juice*

To be competent, the user/individual on the job must be able to:

- PC6.** remove stem and seeds from fruits such as grapes and berries
- PC7.** remove the peel and seeds of citrus fruits and extract their juice
- PC8.** collect the extracted citrus juice, maintaining hygiene
- PC9.** grind fruits such as apple and pear into appropriate gratings, depending on the type of fruit
- PC10.** determine the correct type and quantity of enzymes required for different types of fruits
- PC11.** use the appropriate quantity of enzymes to treat different types of fruits for the recommended duration to allow for optimum fruit-enzyme contact
- PC12.** remove the fruit peel, stem and seeds, and extract the juice
- PC13.** collect the extracted juice and filter it to remove small suspended particles
- PC14.** check the quality of filtered juice based on appearance, colour, consistency, flavour, taste, etc.

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### *Pasteurize Fruit Juice*

To be competent, the user/individual on the job must be able to:

- PC15.** concentrate fruit juice and recover aroma
- PC16.** pasteurize fruit juice at the recommended temperature and other process parameters
- PC17.** cool the pasteurized juice to the required temperature
- PC18.** collect the pasteurized juice, ensuring hygiene

### *Clarify Fruit Juice*

To be competent, the user/individual on the job must be able to:

- PC19.** determine the quantity of enzymes required for the clarification of juice, based on the formulation chart
- PC20.** add the required quantity of enzymes to the pasteurized juice
- PC21.** identify and remove the smallest particles from enzyme-treated juice to obtain clear juice
- PC22.** check the quality of juice based on colour, appearance, flavour, taste, etc.
- PC23.** prepare juice samples and coordinate their quality analysis with the quality-testing lab to ensure conformance to the applicable standards
- PC24.** store the processed juice at the recommended temperature and humidity until packaging or further processing

### *Prepare Squash*

To be competent, the user/individual on the job must be able to:

- PC25.** prepare sugar syrup using the recommended quantity of sugar and permitted acids
- PC26.** maintain the recommended pressure and temperature for the appropriate duration to heat the syrup
- PC27.** check the quality of sugar syrup to ensure conformance to the applicable specifications and standards
- PC28.** filter the sugar syrup to remove undesirable particles and sediments
- PC29.** blend the recommended quantity of juice concentrate/ clarified juice, water, sugar syrup, acids, preservatives, colour, flavour
- PC30.** collect squash sample and check for uniform mixing
- PC31.** pasteurize the squash blend at the recommended pressure, temperature and process parameters
- PC32.** cool the pasteurized squash following the appropriate method
- PC33.** check the quality of pasteurized squash based on appearance, colour, consistency, flavour, taste etc.
- PC34.** sample squash and coordinate with the quality-testing lab for the quality analysis of squash to ensure conformance to the applicable quality standards

### *Fill, pack and store juice and squash*

To be competent, the user/individual on the job must be able to:

- PC35.** transfer the finished product into the filling tank of the packing machine up to the recommended level
- PC36.**
  - load the packing materials in the packaging machine, sealing materials in the sealing machine, and labels in the labelling machine
  - Packing material: Tetra packs, glass bottles, plastic containers, etc.
- PC37.** set the appropriate filling volume on the filling machine according to the company standards

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- PC38.** set the date coding machine with the batch number, manufacturing date, expiry date, etc.
- PC39.** carry out packing, sealing and labelling of juice and squash following the applicable procedure
- PC40.** check the weight of the packed product periodically to ensure conformance to the applicable standards
- PC41.** attach straw in the packaging of packed products
- PC42.** store the packed and labelled products in storage area under the appropriate conditions, using the relevant storage accessories
- PC43.** report discrepancies/concerns to the department supervisor for immediate action

### *Carry out post production activities*

To be competent, the user/individual on the job must be able to:

- PC44.**
  - clean the work area, tools, equipment and machinery using the approved cleaning agents and
  - sanitizers
- PC45.** follow the Clean-in-Place (CIP) and Clean-out-of-Place (COP) procedures
- PC46.** carry out basic repair and maintenance of the tools, equipment and machinery
- PC47.** follow the maintenance schedule and procedure for the tools, equipment and machinery in the manuals provided by the manufacturer
- PC48.** collect and dispose of the waste generated during fruit juice extraction and squash production
- PC49.** carry out appropriate documentation concerning the fruit juice extraction and squash production

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the basic food microbiology
- KU2.** the applicable food safety and hygiene standards
- KU3.** the varieties of raw materials used for fruit juice and squash production
- KU4.** the fruit juice and squash production processes
- KU5.** the use of modern equipment for fruit juice extraction and squash production, such as fruit washer, fruit sorting machine, peeling machine, fruit slicer/ dicer, fruit crusher/ pulper, belt press, hydraulic press, centrifugal juicer, pulper/finisher, refiner, plate heat exchanger, tubular heat exchanger, UV sterilizers, mixing tanks, homogenizers, bottle fillers, can filler, aseptic filling machine, capping machine, labelling machine, cooling tunnels, refrigerated storage, refractometer, pH meter, microbiological testing kits, High-Performance Liquid Chromatography (HPLC), conveyors, pumps, filters, and storage tanks
- KU6.** the benefits of automation in the food processing industry
- KU7.** the use of relevant tools for manual fruit juice extraction and squash production, such as hydraulic juice press, lever-operated citrus press, hand-crank crusher, commercial-grade masticating juicer, basket press, heavy-duty slicer/dicer, heavy-duty mortar and pestle, commercial-grade strainers, industrial cheesecloth, stainless steel mixing tank, large stainless steel kettles, large funnels, stainless steel or food-grade plastic containers, gravity-fed or piston-operated fillers, manual capping machines, lever-operated capper, manual label applicator, etc.

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- KU8.** the basic maintenance and troubleshooting for the relevant tools equipment and machinery used in fruit juice extraction and squash production, including preventive maintenance
- KU9.** the process of aroma stripping during fruit juice production
- KU10.** the importance of ensuring the efficiency of pasteurization for food safety and quality
- KU11.** the methods to evaluate pasteurization effectiveness, including enzyme activity tests, microbiological testing, monitoring Hydroxymethylfurfural (HMF) levels, and rigorous time and temperature monitoring
- KU12.** the new technologies relevant to fruit juice extraction and squash production, such as Centrifugal Juicers, Ultrasonic juice Extraction, Membrane Filtration Systems, Supercritical CO<sub>2</sub> Extraction, High-Pressure Processing (HPP), Vacuum Evaporation, Ultrasonic Homogenizers, etc.
- KU13.** the aseptic packaging process and parameters
- KU14.** the handling of aseptic packaging machineries
- KU15.** the procedure for the disposal of waste generated during fruit juice and squash production
- KU16.** the parameters for assessing the quality of commercially produced fruit juice and squash
- KU17.** the types and categories of packaging materials used in fruit juice and squash production
- KU18.** the use of relevant packing, sealing and labelling machineries
- KU19.** the applicable packing, sealing and labelling requirements, regulations and standards
- KU20.** the storage requirements and procedures for fruit juice and squash raw materials, packaging materials and products
- KU21.** the Clean-in-Place (CIP) and Clean-out-of-Place (COP) procedures
- KU22.** the safe use and storage of the relevant sanitizers and disinfectants
- KU23.** the applicable documentation requirements

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant guides and literature to get the latest information about the field of work
- GS3.** communicate clearly and politely
- GS4.** perform basic calculations
- GS5.** listen attentively to understand the instructions being given
- GS6.** identify solutions to work-related issues
- GS7.** make quick decisions in case of an emergency/ accident
- GS8.** plan and prioritise tasks to ensure timely completion

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Receive, wash, sort and slice fruits</i>	<b>3</b>	<b>5</b>	-	<b>2</b>
<b>PC1.</b> check the weight and quality of the fruits received from the supplier/vendor based on appearance, colour, texture, maturity, etc.	-	-	-	-
<b>PC2.</b> wash fruits using water to remove dirt, soil and other impurities from fruits	-	-	-	-
<b>PC3.</b> rinse fruits by spraying fresh water on them at the recommended pressure	-	-	-	-
<b>PC4.</b> • examine and remove damaged, blemished and rotten fruits, and dispose of them following the • standard procedure	-	-	-	-
<b>PC5.</b> cut/grate fruits to the required size and collect the sliced/grated fruits hygienically for further processing	-	-	-	-
<i>Extract fruit juice</i>	<b>5</b>	<b>9</b>	-	<b>4</b>
<b>PC6.</b> remove stem and seeds from fruits such as grapes and berries	-	-	-	-
<b>PC7.</b> remove the peel and seeds of citrus fruits and extract their juice	-	-	-	-
<b>PC8.</b> collect the extracted citrus juice, maintaining hygiene	-	-	-	-
<b>PC9.</b> grind fruits such as apple and pear into appropriate gratings, depending on the type of fruit	-	-	-	-
<b>PC10.</b> determine the correct type and quantity of enzymes required for different types of fruits	-	-	-	-
<b>PC11.</b> use the appropriate quantity of enzymes to treat different types of fruits for the recommended duration to allow for optimum fruit-enzyme contact	-	-	-	-
<b>PC12.</b> remove the fruit peel, stem and seeds, and extract the juice	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> collect the extracted juice and filter it to remove small suspended particles	-	-	-	-
<b>PC14.</b> check the quality of filtered juice based on appearance, colour, consistency, flavour, taste, etc.	-	-	-	-
<i>Pasteurize Fruit Juice</i>	<b>3</b>	<b>4</b>	-	<b>2</b>
<b>PC15.</b> concentrate fruit juice and recover aroma	-	-	-	-
<b>PC16.</b> pasteurize fruit juice at the recommended temperature and other process parameters	-	-	-	-
<b>PC17.</b> cool the pasteurized juice to the required temperature	-	-	-	-
<b>PC18.</b> collect the pasteurized juice, ensuring hygiene	-	-	-	-
<i>Clarify Fruit Juice</i>	<b>4</b>	<b>6</b>	-	<b>2</b>
<b>PC19.</b> determine the quantity of enzymes required for the clarification of juice, based on the formulation chart	-	-	-	-
<b>PC20.</b> add the required quantity of enzymes to the pasteurized juice	-	-	-	-
<b>PC21.</b> identify and remove the smallest particles from enzyme-treated juice to obtain clear juice	-	-	-	-
<b>PC22.</b> check the quality of juice based on colour, appearance, flavour, taste, etc.	-	-	-	-
<b>PC23.</b> prepare juice samples and coordinate their quality analysis with the quality-testing lab to ensure conformance to the applicable standards	-	-	-	-
<b>PC24.</b> store the processed juice at the recommended temperature and humidity until packaging or further processing	-	-	-	-
<i>Prepare Squash</i>	<b>6</b>	<b>11</b>	-	<b>4</b>
<b>PC25.</b> prepare sugar syrup using the recommended quantity of sugar and permitted acids	-	-	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC26.</b> maintain the recommended pressure and temperature for the appropriate duration to heat the syrup	-	-	-	-
<b>PC27.</b> check the quality of sugar syrup to ensure conformance to the applicable specifications and standards	-	-	-	-
<b>PC28.</b> filter the sugar syrup to remove undesirable particles and sediments	-	-	-	-
<b>PC29.</b> blend the recommended quantity of juice concentrate/ clarified juice, water, sugar syrup, acids, preservatives, colour, flavour	-	-	-	-
<b>PC30.</b> collect squash sample and check for uniform mixing	-	-	-	-
<b>PC31.</b> pasteurize the squash blend at the recommended pressure, temperature and process parameters	-	-	-	-
<b>PC32.</b> cool the pasteurized squash following the appropriate method	-	-	-	-
<b>PC33.</b> check the quality of pasteurized squash based on appearance, colour, consistency, flavour, taste etc.	-	-	-	-
<b>PC34.</b> sample squash and coordinate with the quality-testing lab for the quality analysis of squash to ensure conformance to the applicable quality standards	-	-	-	-
<i>Fill, pack and store juice and squash</i>	<b>5</b>	<b>9</b>	-	<b>4</b>
<b>PC35.</b> transfer the finished product into the filling tank of the packing machine up to the recommended level	-	-	-	-
<b>PC36.</b> <ul style="list-style-type: none"> <li>load the packing materials in the packaging machine, sealing materials in the sealing machine, and labels in the labelling machine</li> <li>Packing material: Tetra packs, glass bottles, plastic containers, etc.</li> </ul>	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC37.</b> set the appropriate filling volume on the filling machine according to the company standards	-	-	-	-
<b>PC38.</b> set the date coding machine with the batch number, manufacturing date, expiry date, etc.	-	-	-	-
<b>PC39.</b> carry out packing, sealing and labelling of juice and squash following the applicable procedure	-	-	-	-
<b>PC40.</b> check the weight of the packed product periodically to ensure conformance to the applicable standards	-	-	-	-
<b>PC41.</b> attach straw in the packaging of packed products	-	-	-	-
<b>PC42.</b> store the packed and labelled products in storage area under the appropriate conditions, using the relevant storage accessories	-	-	-	-
<b>PC43.</b> report discrepancies/concerns to the department supervisor for immediate action	-	-	-	-
<i>Carry out post production activities</i>	<b>4</b>	<b>6</b>	-	<b>2</b>
<b>PC44.</b> • clean the work area, tools, equipment and machinery using the approved cleaning agents and • sanitizers	-	-	-	-
<b>PC45.</b> follow the Clean-in-Place (CIP) and Clean-out-of-Place (COP) procedures	-	-	-	-
<b>PC46.</b> carry out basic repair and maintenance of the tools, equipment and machinery	-	-	-	-
<b>PC47.</b> follow the maintenance schedule and procedure for the tools, equipment and machinery in the manuals provided by the manufacturer	-	-	-	-
<b>PC48.</b> collect and dispose of the waste generated during fruit juice extraction and squash production	-	-	-	-
<b>PC49.</b> carry out appropriate documentation concerning the fruit juice extraction and squash production	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>50</b>	-	<b>20</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N0103
<b>NOS Name</b>	Produce Squash and Juice
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables, Bread and Bakery, Packaged Goods
<b>Occupation</b>	Processing-Fruits and Vegetables
<b>NSQF Level</b>	3
<b>Credits</b>	5
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	22/10/2024
<b>Next Review Date</b>	22/10/2027
<b>NSQC Clearance Date</b>	22/10/2024

## Qualification Pack

### FIC/N0209: Produce a variety of pickles

#### Description

This unit is about preparing different types of pickles from fruits and vegetables as per the applicable specifications.

#### Scope

The scope covers the following :

- The scope covers the following:
- Wash, sort and grade fruits and vegetables
- Peel and slice fruits and vegetables
- Prepare the brine solution
- Cure fruits and vegetables
- Prepare, pack and store pickles
- Carry out the post-production activities

#### Elements and Performance Criteria

##### *Wash, sort and grade fruits and vegetables*

To be competent, the user/individual on the job must be able to:

- PC1.** sample and test the water quality following the appropriate procedures before use
- PC2.** fill in water up to the recommended level in the water tank for washing the fruits and vegetables
- PC3.** wash fruits and vegetables by submerging them appropriately in water
- PC4.** rinse fruits and vegetables thoroughly with fresh water
- PC5.** dry the fruits and vegetables following the appropriate drying method, as required, to concentrate the flavour and achieve the appropriate texture before pickling
- PC6.** inspect and discard damaged fruits and vegetables
- PC7.** grade fruits and vegetables based on the applicable parameters, such as size, shape, colour, appearance, etc.

##### *Peel and slice fruits and vegetables*

To be competent, the user/individual on the job must be able to:

- PC8.** peel and wash fruits and vegetables following the appropriate peeling and washing methods
- PC9.** slice fruits and vegetables to the required size
- PC10.** check the sliced fruits and vegetables for spoilage and remove the ones unsuitable for further processing

##### *Prepare the brine solution*

To be competent, the user/individual on the job must be able to:

- PC11.** measure the ingredients, such as vinegar, salt, and sugar, to prepare the brine solution according to the brine recipe
- PC12.** prepare the brine solution following the applicable procedure

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- PC13.** check the salt concentration in the brine solution to ensure it is within the permitted limits
- PC14.** store the prepared brine solution in clean and appropriately labelled containers
- PC15.** maintain the appropriate temperature and humidity in the storage to preserve the brine's quality

### *Cure fruits and vegetables*

To be competent, the user/individual on the job must be able to:

- PC16.** steam fruits and vegetables, as required
- PC17.** carry out necessary pre-treatments like blanching or soaking to prepare the produce for curing
- PC18.** maintain the cut fruits and vegetables in the brine solution for fermentation for the recommended duration
- PC19.** maintain salt equilibrium by stirring fruits and vegetables periodically
- PC20.** check the acidity levels to ensure the fermentation process is complete
- PC21.** check the curing progress for any signs of spoilage or contamination and take appropriate corrective measures

### *Prepare, pack and store pickles*

To be competent, the user/individual on the job must be able to:

- PC22.** prepare the spice mix as per the formulation using the measured quantity of spices and oil
- PC23.** mix the spice mix and fermented fruits and vegetables appropriately to ensure consistency
- PC24.** check the finished product to ensure it meets the applicable quality standards
- PC25.** select the appropriate packaging materials considering the type of product and packaging requirements
- PC26.** pack pickles in the selected packaging materials
- PC27.** label the packaging material with the necessary information s per the applicable FSSAI standards
- PC28.** ensure effective sealing of packaging materials to prevent contamination or damage to the product
- PC29.** sample the pickles and coordinate with the quality-testing laboratory for its quality analysis
- PC30.** store the packed pickles in a hygienic storage under the recommended temperature and humidity
- PC31.** use the appropriate storage accessories, e.g. crates and cartons, for safe storage of pickles

### *Carry out the post-production activities*

To be competent, the user/individual on the job must be able to:

- PC32.** clean and disinfect the work area, tools, equipment and machinery using the recommended cleaning agents
- PC33.** use and store the recommended disinfectants and sanitizers safely
- PC34.** follow the appropriate Clean-in-Place and Clean-out-of-place (COP) methods
- PC35.** carry out basic repair and maintenance of the tools, equipment and machinery
- PC36.** report any concerns to supervisor for immediate resolution
- PC37.** ensure periodic maintenance of the tools, equipment and machinery as per the manufacturer's instructions
- PC38.** carry out appropriate documentation concerning pickle production

## Qualification Pack

**PC39.** dispose of the waste following the organizational procedure

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the FSSAI food safety regulations
- KU2.** different types of fruits and vegetables suitable for making pickles
- KU3.** the appropriate quality of raw materials required for making pickles
- KU4.** the process of washing and rinsing fruits and vegetables before making pickles
- KU5.** different methods for drying fruits and vegetables after washing
- KU6.** how to carry out processes such as peeling and slicing without damaging the fruits and vegetables
- KU7.** the parameters for sorting and grading fruits and vegetables, e.g. size, shape, colour, appearance, etc.
- KU8.** different pickle recipes, including the balance of flavours, brine concentration, and spiciness
- KU9.** the use of different ingredients for pickle making
- KU10.** the procedure to prepare the brine solution
- KU11.** different methods for the preservation of pickles, such as fermentation, pasteurization, and refrigeration
- KU12.** knowledge of sanitizers and disinfectants and their handling and storing methods
- KU13.** food laws and regulations on product, packaging and labeling
- KU14.** the FSSAI regulations regarding permissible ingredients and additives for the production of pickle
- KU15.** the intrinsic and extrinsic factors affecting the spoilage of fruits and vegetables
- KU16.** the inspection techniques to detect spoilages, damaged fruits and vegetables and the procedure followed to discard them appropriately
- KU17.** the appropriate packaging materials and techniques to ensure optimum shelf life and safety of pickles
- KU18.** the FSSAI labelling requirements concerning pickles
- KU19.** the procedure for sampling the prepared pickles
- KU20.** the appropriate procedure for the disposal of waste material generated during pickle making

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant guides and literature to get the latest information about the field of work
- GS3.** communicate clearly and politely
- GS4.** perform basic calculations
- GS5.** listen attentively to understand the instructions being given

## Qualification Pack

- GS6.** identify solutions to work-related issues
- GS7.** plan and prioritize tasks to ensure timely completion
- GS8.** make quick decisions in case of an emergency/ accident

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Wash, sort and grade fruits and vegetables</i>	<b>5</b>	<b>8</b>	-	<b>3</b>
<b>PC1.</b> sample and test the water quality following the appropriate procedures before use	0.5	1	-	0.5
<b>PC2.</b> fill in water up to the recommended level in the water tank for washing the fruits and vegetables	1	1	-	0.5
<b>PC3.</b> wash fruits and vegetables by submerging them appropriately in water	0.5	2	-	0.5
<b>PC4.</b> rinse fruits and vegetables thoroughly with fresh water	1	1	-	-
<b>PC5.</b> dry the fruits and vegetables following the appropriate drying method, as required, to concentrate the flavour and achieve the appropriate texture before pickling	1	1	-	0.5
<b>PC6.</b> inspect and discard damaged fruits and vegetables	0.5	1	-	0.5
<b>PC7.</b> grade fruits and vegetables based on the applicable parameters, such as size, shape, colour, appearance, etc.	0.5	1	-	0.5
<i>Peel and slice fruits and vegetables</i>	<b>2</b>	<b>3.5</b>	-	<b>1.5</b>
<b>PC8.</b> peel and wash fruits and vegetables following the appropriate peeling and washing methods	1	1.5	-	0.5
<b>PC9.</b> slice fruits and vegetables to the required size	0.5	1	-	0.5
<b>PC10.</b> check the sliced fruits and vegetables for spoilage and remove the ones unsuitable for further processing	0.5	1	-	0.5
<i>Prepare the brine solution</i>	<b>3.5</b>	<b>6</b>	-	<b>2.5</b>
<b>PC11.</b> measure the ingredients, such as vinegar, salt, and sugar, to prepare the brine solution according to the brine recipe	1	1.5	-	0.5



### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> prepare the brine solution following the applicable procedure	1	1.5	-	0.5
<b>PC13.</b> check the salt concentration in the brine solution to ensure it is within the permitted limits	0.5	1	-	0.5
<b>PC14.</b> store the prepared brine solution in clean and appropriately labelled containers	0.5	1	-	0.5
<b>PC15.</b> maintain the appropriate temperature and humidity in the storage to preserve the brine's quality	0.5	1	-	0.5
<i>Cure fruits and vegetables</i>	<b>4</b>	<b>7</b>	-	<b>3</b>
<b>PC16.</b> steam fruits and vegetables, as required	0.5	1	-	0.5
<b>PC17.</b> carry out necessary pre-treatments like blanching or soaking to prepare the produce for curing	1	1.5	-	0.5
<b>PC18.</b> maintain the cut fruits and vegetables in the brine solution for fermentation for the recommended duration	0.5	1	-	0.5
<b>PC19.</b> maintain salt equilibrium by stirring fruits and vegetables periodically	0.5	1	-	0.5
<b>PC20.</b> check the acidity levels to ensure the fermentation process is complete	0.5	1	-	0.5
<b>PC21.</b> check the curing progress for any signs of spoilage or contamination and take appropriate corrective measures	1	1.5	-	0.5
<i>Prepare, pack and store pickles</i>	<b>10</b>	<b>16</b>	-	<b>6</b>
<b>PC22.</b> prepare the spice mix as per the formulation using the measured quantity of spices and oil	1	2	-	-
<b>PC23.</b> mix the spice mix and fermented fruits and vegetables appropriately to ensure consistency	1	2	-	-
<b>PC24.</b> check the finished product to ensure it meets the applicable quality standards	1	2	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC25.</b> select the appropriate packaging materials considering the type of product and packaging requirements	1	1	-	-
<b>PC26.</b> pack pickles in the selected packaging materials	1	2	-	-
<b>PC27.</b> label the packaging material with the necessary information s per the applicable FSSAI standards	1	2	-	-
<b>PC28.</b> ensure effective sealing of packaging materials to prevent contamination or damage to the product	1	1	-	-
<b>PC29.</b> sample the pickles and coordinate with the quality-testing laboratory for its quality analysis	1	2	-	-
<b>PC30.</b> store the packed pickles in a hygienic storage under the recommended temperature and humidity	1	1	-	-
<b>PC31.</b> use the appropriate storage accessories, e.g. crates and cartons, for safe storage of pickles	1	1	-	-
<i>Carry out the post-production activities</i>	<b>5.5</b>	<b>9.5</b>	-	<b>4</b>
<b>PC32.</b> clean and disinfect the work area, tools, equipment and machinery using the recommended cleaning agents	1	1	-	0.5
<b>PC33.</b> use and store the recommended disinfectants and sanitizers safely	0.5	2	-	0.5
<b>PC34.</b> follow the appropriate Clean-in-Place and Clean-out-of-place (COP) methods	1	2	-	0.5
<b>PC35.</b> carry out basic repair and maintenance of the tools, equipment and machinery	1	2	-	0.5
<b>PC36.</b> report any concerns to supervisor for immediate resolution	0.5	1	-	0.5
<b>PC37.</b> ensure periodic maintenance of the tools, equipment and machinery as per the manufacturer's instructions	0.5	0.5	-	0.5

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC38.</b> carry out appropriate documentation concerning pickle production	0.5	0.5	-	0.5
<b>PC39.</b> dispose of the waste following the organizational procedure	0.5	0.5	-	0.5
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N0209
<b>NOS Name</b>	Produce a variety of pickles
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	
<b>Occupation</b>	Processing-Fruits and Vegetables
<b>NSQF Level</b>	3
<b>Credits</b>	3
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	22/10/2024
<b>Next Review Date</b>	22/10/2027
<b>NSQC Clearance Date</b>	22/10/2024

## Qualification Pack

### FIC/N0210: Carry out production of jam, jelly and ketchup

#### Description

This unit is about the production of varieties of jams, jellies and ketchups as per the applicable specifications and organizational standards.

#### Scope

The scope covers the following :

- The scope covers the following:
- Wash and sort fruits and vegetables
- Peel, cut, and deseed/de-stone fruits and vegetables
- Pulp fruits and vegetables and extract fruit juice
- Prepare jam and jelly
- Prepare ketchup
- Pack jam, jelly and ketchup
- Carry out the post-production activities

#### Elements and Performance Criteria

##### *Wash and sort fruits and vegetables*

To be competent, the user/individual on the job must be able to:

- PC1.** check the quantity and quality of the fruits and vegetables received from the supplier/vendor, to ensure conformance to the order specifications and applicable standards
- PC2.** perform primary and secondary washing of fruits and vegetables using appropriate washing methods
- PC3.** inspect fruits and vegetables for signs of damage or spoilage and sort out the unsuitable ones
- PC4.** rinse fruits and vegetables appropriately using fresh water
- PC5.** grade fruits and vegetables according to applicable industry parameters, e.g. size, shape, colour, etc.

##### *Peel, cut, and deseed/de-stone fruits and vegetables*

To be competent, the user/individual on the job must be able to:

- PC6.** remove the peel of fruits and vegetables following the appropriate method
- PC7.** wash the peeled fruits and vegetables properly
- PC8.** cut the fruits and vegetables to the required size
- PC9.** destone or de-seed the relevant fruits and vegetables following the appropriate methods
- PC10.** dispose of the waste according to the applicable regulations and organizational standards

##### *Pulp fruits and vegetables and extract fruit juice*

To be competent, the user/individual on the job must be able to:

- PC11.** pulp fruits and vegetables using the pulping machine or other appropriate tools and equipment
- PC12.** extract fruit juice following the appropriate hygienic practices

## Qualification Pack

- PC13.** refine the pulp and fruit juice using the sieving machine with appropriate sieves
- PC14.** check the quality of fruit pulp and fruit juice based on appearance, colour, odour, etc.
- PC15.** sample fruit pulp and fruit juice and coordinate their quality analysis with the quality-testing lab

### *Prepare jam and jelly*

To be competent, the user/individual on the job must be able to:

- PC16.** cook the measured quantity of fruit pulp and fruit juice at the recommended temperature to prepare jam and jelly
- PC17.** ensure continuous stirring of fruit pulp and fruit juice to prevent sticking/scorching
- PC18.** prepare pectin solution using the recommended quantity of water and pectin
- PC19.** add the recommended quantity of ingredients, such as sugar, pectin solution, flavouring agents, and colouring agents to the fruit pulp and fruit juice as per the formulation
- PC20.** ensure proper cooking of fruit pulp and fruit juice for the recommended duration
- PC21.** check the quality of cooked fruit pulp and fruit juice based on applicable parameters, such as colour, appearance, texture, taste, etc.
- PC22.** sample the cooked fruit pulp and fruit juice and coordinate their quality analysis with the quality-testing lab to ensure conformance to the applicable quality standards

### *Prepare ketchup*

To be competent, the user/individual on the job must be able to:

- PC23.** cook the measured quantity of tomato pulp/puree at the recommended temperature to prepare ketchup
- PC24.** ensure continuous stirring of tomato pulp/puree to prevent sticking/scorching
- PC25.** add the recommended quantity of ingredients, such as sugar, salt, spice powder, and vinegar to the tomato pulp/puree as per the formulation
- PC26.** ensure proper cooking of tomato pulp/puree for the recommended duration
- PC27.** check the quality of cooked tomato pulp/puree based on applicable parameters, such as colour, appearance, texture, taste, etc.
- PC28.** sample the ketchup and coordinate its quality analysis with the quality-testing lab to ensure conformance to the applicable quality standards

### *Pack jam, jelly and ketchup*

To be competent, the user/individual on the job must be able to:

- PC29.** select appropriate packaging materials to pack jam, jelly and ketchup
- PC30.** ensure the packaging materials are clean and sterilized
- PC31.** fill in the packaging materials with jam, jelly and ketchup, taking appropriate measures to minimize air exposure
- PC32.** maintain the recommended headspace in the packaging material during filling to allow for product expansion during heat processing
- PC33.** ensure consistent weight in the packaging material
- PC34.** seal the packaging following the appropriate method
- PC35.** pasteurize the packed jam, jelly and ketchup at the recommended temperature for the appropriate duration to destroy harmful bacteria and extend shelf life
- PC36.** cool the packed jam, jelly and ketchup following the appropriate method

## Qualification Pack

- PC37.** label the packed jam, jelly and ketchup with the necessary information in compliance with the applicable FSSAI regulations
- PC38.** examine the packaging for leaks, damage, and proper labelling
- PC39.** store the packed jam, jelly and ketchup at the recommended temperature and humidity in a hygienic storage

### *Carry out the post-production activities*

To be competent, the user/individual on the job must be able to:

- PC40.** clean and disinfect the work area, tools, equipment and machinery using the recommended cleaning agents
- PC41.** use and store the recommended disinfectants and sanitizers safely
- PC42.** follow the appropriate Clean-in-Place and Clean-out-of-place (COP) methods
- PC43.** carry out basic repair and maintenance of the tools, equipment and machinery
- PC44.** report any concerns to supervisor for immediate resolution
- PC45.** ensure periodic maintenance of the tools, equipment and machinery as per the manufacturer's instructions
- PC46.** carry out appropriate documentation concerning jam, jelly and ketchup production
- PC47.** dispose of the waste following the organizational procedure

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the applicable FSSAI food safety and hygiene standards and regulations
- KU2.** different types of fruits and vegetables suitable for the production of jam, jelly and ketchup
- KU3.** the production processes for jam, jelly and ketchup and relevant formulations
- KU4.** different methods to wash fruits and vegetables before the production of different products
- KU5.** the quality, ripeness, and varieties of fruits and vegetables suitable for jams, jellies, and ketchup
- KU6.** different types of sugar and their roles in preservation and texture
- KU7.** the role of pectin in gel formation for jam and jelly
- KU8.** the use of acidulants, such as lemon juice or vinegar for flavour and pH balance
- KU9.** the selection and usage of spices and herbs for flavour enhancement of ketchup
- KU10.** the processing techniques to prepare jam, jelly and ketchup, e.g. washing, peeling, chopping, and pureeing of fruits and vegetables
- KU11.** the proper techniques for cooking to achieve the desired consistency
- KU12.** the impact of heat on fruit/vegetable structure, sugar, and pectin
- KU13.** the importance of using sterilized equipment and containers during the production of jam, jelly and ketchup
- KU14.** the use of permissible ingredients and additives in jam, jelly and ketchup production
- KU15.** the process of gel formation and how to control it
- KU16.** the canning methods to ensure product safety and shelf stability

## Qualification Pack

- KU17.** the pasteurization techniques to kill harmful bacteria without compromising the flavour of ketchup
- KU18.** the applicable quality requirements, e.g. appropriate pH, texture, viscosity, etc.
- KU19.** the appropriate packaging materials to ensure the product safety and longevity of jam, jelly and ketchup
- KU20.** the applicable labelling requirements for jam, jelly and ketchup, as per the relevant FSSAI regulations
- KU21.** the proper methods to seal jars and bottles to prevent contamination and spoilage
- KU22.** the appropriate storage conditions to maintain the quality of jam, jelly and ketchup

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant guides and literature to get the latest information about the field of work
- GS3.** communicate clearly and politely
- GS4.** perform basic calculations
- GS5.** listen attentively to understand the instructions being given
- GS6.** identify solutions to work-related issues
- GS7.** plan and prioritize tasks to ensure timely completion
- GS8.** make quick decisions in case of an emergency/ accident



## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Wash and sort fruits and vegetables</i>	<b>3</b>	<b>5</b>	-	<b>2</b>
<b>PC1.</b> check the quantity and quality of the fruits and vegetables received from the supplier/vendor, to ensure conformance to the order specifications and applicable standards	-	-	-	-
<b>PC2.</b> perform primary and secondary washing of fruits and vegetables using appropriate washing methods	-	-	-	-
<b>PC3.</b> inspect fruits and vegetables for signs of damage or spoilage and sort out the unsuitable ones	-	-	-	-
<b>PC4.</b> rinse fruits and vegetables appropriately using fresh water	-	-	-	-
<b>PC5.</b> grade fruits and vegetables according to applicable industry parameters, e.g. size, shape, colour, etc.	-	-	-	-
<i>Peel, cut, and deseed/de-stone fruits and vegetables</i>	<b>3</b>	<b>5</b>	-	<b>2</b>
<b>PC6.</b> remove the peel of fruits and vegetables following the appropriate method	-	-	-	-
<b>PC7.</b> wash the peeled fruits and vegetables properly	-	-	-	-
<b>PC8.</b> cut the fruits and vegetables fruits to the required size	-	-	-	-
<b>PC9.</b> destone or de-seed the relevant fruits and vegetables following the appropriate methods	-	-	-	-
<b>PC10.</b> dispose of the waste according to the applicable regulations and organizational standards	-	-	-	-
<i>Pulp fruits and vegetables and extract fruit juice</i>	<b>3</b>	<b>5</b>	-	<b>2</b>
<b>PC11.</b> pulp fruits and vegetables using the pulping machine or other appropriate tools and equipment	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> extract fruit juice following the appropriate hygienic practices	-	-	-	-
<b>PC13.</b> refine the pulp and fruit juice using the sieving machine with appropriate sieves	-	-	-	-
<b>PC14.</b> check the quality of fruit pulp and fruit juice based on appearance, colour, odour, etc.	-	-	-	-
<b>PC15.</b> sample fruit pulp and fruit juice and coordinate their quality analysis with the quality-testing lab	-	-	-	-
<i>Prepare jam and jelly</i>	<b>5</b>	<b>8</b>	-	<b>3</b>
<b>PC16.</b> cook the measured quantity of fruit pulp and fruit juice at the recommended temperature to prepare jam and jelly	-	-	-	-
<b>PC17.</b> ensure continuous stirring of fruit pulp and fruit juice to prevent sticking/scorching	-	-	-	-
<b>PC18.</b> prepare pectin solution using the recommended quantity of water and pectin	-	-	-	-
<b>PC19.</b> add the recommended quantity of ingredients, such as sugar, pectin solution, flavouring agents, and colouring agents to the fruit pulp and fruit juice as per the formulation	-	-	-	-
<b>PC20.</b> ensure proper cooking of fruit pulp and fruit juice for the recommended duration	-	-	-	-
<b>PC21.</b> check the quality of cooked fruit pulp and fruit juice based on applicable parameters, such as colour, appearance, texture, taste, etc.	-	-	-	-
<b>PC22.</b> sample the cooked fruit pulp and fruit juice and coordinate their quality analysis with the quality-testing lab to ensure conformance to the applicable quality standards	-	-	-	-
<i>Prepare ketchup</i>	<b>4</b>	<b>6.5</b>	-	<b>2.5</b>
<b>PC23.</b> cook the measured quantity of tomato pulp/puree at the recommended temperature to prepare ketchup	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC24.</b> ensure continuous stirring of tomato pulp/puree to prevent sticking/scorching	-	-	-	-
<b>PC25.</b> add the recommended quantity of ingredients, such as sugar, salt, spice powder, and vinegar to the tomato pulp/puree as per the formulation	-	-	-	-
<b>PC26.</b> ensure proper cooking of tomato pulp/puree for the recommended duration	-	-	-	-
<b>PC27.</b> check the quality of cooked tomato pulp/puree based on applicable parameters, such as colour, appearance, texture, taste, etc.	-	-	-	-
<b>PC28.</b> sample the ketchup and coordinate its quality analysis with the quality-testing lab to ensure conformance to the applicable quality standards	-	-	-	-
<i>Pack jam, jelly and ketchup</i>	<b>7</b>	<b>12</b>	-	<b>4.5</b>
<b>PC29.</b> select appropriate packaging materials to pack jam, jelly and ketchup	-	-	-	-
<b>PC30.</b> ensure the packaging materials are clean and sterilized	-	-	-	-
<b>PC31.</b> fill in the packaging materials with jam, jelly and ketchup, taking appropriate measures to minimize air exposure	-	-	-	-
<b>PC32.</b> maintain the recommended headspace in the packaging material during filling to allow for product expansion during heat processing	-	-	-	-
<b>PC33.</b> ensure consistent weight in the packaging material	-	-	-	-
<b>PC34.</b> seal the packaging following the appropriate method	-	-	-	-
<b>PC35.</b> pasteurize the packed jam, jelly and ketchup at the recommended temperature for the appropriate duration to destroy harmful bacteria and extend shelf life	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC36.</b> cool the packed jam, jelly and ketchup following the appropriate method	-	-	-	-
<b>PC37.</b> label the packed jam, jelly and ketchup with the necessary information in compliance with the applicable FSSAI regulations	-	-	-	-
<b>PC38.</b> examine the packaging for leaks, damage, and proper labelling	-	-	-	-
<b>PC39.</b> store the packed jam, jelly and ketchup at the recommended temperature and humidity in a hygienic storage	-	-	-	-
<i>Carry out the post-production activities</i>	<b>5</b>	<b>8.5</b>	-	<b>4</b>
<b>PC40.</b> clean and disinfect the work area, tools, equipment and machinery using the recommended cleaning agents	-	-	-	-
<b>PC41.</b> use and store the recommended disinfectants and sanitizers safely	-	-	-	-
<b>PC42.</b> follow the appropriate Clean-in-Place and Clean-out-of-place (COP) methods	-	-	-	-
<b>PC43.</b> carry out basic repair and maintenance of the tools, equipment and machinery	-	-	-	-
<b>PC44.</b> report any concerns to supervisor for immediate resolution	-	-	-	-
<b>PC45.</b> ensure periodic maintenance of the tools, equipment and machinery as per the manufacturer's instructions	-	-	-	-
<b>PC46.</b> carry out appropriate documentation concerning jam, jelly and ketchup production	-	-	-	-
<b>PC47.</b> dispose of the waste following the organizational procedure	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>50</b>	-	<b>20</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N0210
<b>NOS Name</b>	Carry out production of jam, jelly and ketchup
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	
<b>Occupation</b>	Processing-Fruits and Vegetables
<b>NSQF Level</b>	4
<b>Credits</b>	3
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	22/10/2024
<b>Next Review Date</b>	22/10/2027
<b>NSQC Clearance Date</b>	22/10/2024

## Qualification Pack

### FIC/N0118: Dry/ Dehydrate fruits and vegetables

#### Description

This unit is about drying/dehydrating fruits and vegetables as per the applicable specifications and organizational standards.

#### Scope

The scope covers the following :

- The scope covers the following:
- Wash fruits and vegetables
- Sort, peel, slice and blanch fruits and vegetables
- Treat fruits and vegetables with Sulphur
- Dry fruits and vegetables under the sun
- Hot air-dry fruits and vegetables
- Freeze-dry fruits and vegetables
- Inspect, pack and store dried/dehydrated fruits and vegetables
- Carry out the post-production activities

#### Elements and Performance Criteria

##### *Wash fruits and vegetables*

To be competent, the user/individual on the job must be able to:

- PC1.** check the weight and quality of fruits and vegetables received from the supplier/vendor based on appearance, colour, texture, maturity, etc.
- PC2.** fill in the washing tank up to the recommended level and dump fruits and vegetables into it for washing
- PC3.** immerse and wash fruits and vegetables appropriately in water to remove dirt, soil, etc.
- PC4.** transfer fruits safely from the washing tank to the washing line conveyor
- PC5.** wash fruits and vegetables appropriately with chlorinated or ozonated water
- PC6.** rinse fruits and vegetables thoroughly with fresh water

##### *Sort, peel, slice and blanch fruits and vegetables*

To be competent, the user/individual on the job must be able to:

- PC7.** sort fruits and vegetables and remove the unsuitable ones, e.g. damaged, blemished and rotten fruits and vegetables
- PC8.** grade fruits and vegetables on the basis of different sizes
- PC9.** remove the peel or core of fruits and vegetables
- PC10.** prepare the lye solution using lye chemical and water in the recommended quantity at the appropriate pressure and temperature
- PC11.** remove the skin or membrane of fruits and vegetables using lye solution, as appropriate
- PC12.** carry out steam peeling of fruits and vegetables, as appropriate
- PC13.** chop/ cut/ slice fruits and vegetables to the specified size and shape using the appropriate tools and equipment

## Qualification Pack

- PC14.** carry out blanching of different types of fruits and vegetables for the appropriate duration
- PC15.** examine the blanched fruits and vegetables visually and through feel/texture to determine the adequacy of softening

### *Treat fruits and vegetables with Sulphur*

To be competent, the user/individual on the job must be able to:

- PC16.** spread the relevant fruits and vegetables uniformly on trays for the application of Sulphur
- PC17.** use the recommended quantity of Sulphur to generate Sulphur fumes or prepare Sulphur mix in water
- PC18.** carry out Sulphur treatment of fruits and vegetables by exposing them to Sulphur fumes or water mixed with Sulphur for the recommended duration

### *Dry fruits and vegetables under the sun*

To be competent, the user/individual on the job must be able to:

- PC19.** weigh the pre-processed fruits and vegetables and spread them uniformly over trays for drying
- PC20.** arrange the trays loaded with fruits and vegetables in the drying area/yard for exposure to direct sunlight
- PC21.** maintain fruits and vegetables under sunlight for an appropriate duration, depending on the intensity of sunlight
- PC22.** check the fruits and vegetables for the removal of moisture and complete dryness
- PC23.** identify and remove unwanted particles from the dried fruits and vegetables

### *Hot air dry fruits and vegetables*

To be competent, the user/individual on the job must be able to:

- PC24.** set the appropriate hot air drier temperature and duration for drying various types of fruits and vegetables
- PC25.** dry fruits and vegetables using a hot air dryer by exposing them to hot air for the recommended duration
- PC26.** cool the dry fruit and vegetables under the fan at an appropriate speed in the cooling area
- PC27.** dry fruits and vegetables using the tunnel drier, as required, maintaining the recommended tunnel drier parameters
- PC28.** check the colour, appearance, dryness, and firmness of fruits and vegetables after tunnel drying to ensure conformance to the applicable standards
- PC29.** cool the dried fruits and vegetables in the cooling area, by maintaining the appropriate temperature

### *Freeze dry fruits and vegetables*

To be competent, the user/individual on the job must be able to:

- PC30.** set the appropriate temperature and duration for the freezing room
- PC31.** maintain different types of fruits and vegetables in the freezing room for the recommended duration for the optimum freezing
- PC32.** identify and remove the fruits and vegetables that do not conform to the applicable standards
- PC33.** freeze-dry fruits and vegetables in the freeze-drying chamber under the appropriate conditions for the recommended duration

## Qualification Pack

**PC34.** check the colour, flavour, appearance, and dryness of fruits and vegetables after freezedrying to ensure conformance to the applicable standards

*Inspect, pack and store dried/dehydrated fruits and vegetables*

To be competent, the user/individual on the job must be able to:

**PC35.** check the dry fruits and vegetables and sort them based on applicable parameters, such as size, shape, colour, maturity, and variety

**PC36.** transfer the dried/ dehydrated products to the packaging machine for packing

**PC37.** load appropriate packing materials in the packaging machine

**PC38.** • set the packing quantity, and the date coding machine for date code details, e.g. batch  
• number, date of manufacture, date of expiry, etc.

**PC39.** fill and seal the measured quantity of finished products using the packaging machine

**PC40.** check the weight of packed product periodically to ensure its conformance to the applicable standards

**PC41.** carry out labelling of the packed fruits and vegetables with the required information using the appropriate equipment

**PC42.** sample the packed fruits and vegetables and coordinate their quality analysis with the qualitytesting lab to ensure conformance with the applicable quality standards

**PC43.** store the packed fruits and vegetables in a hygienic storage under the appropriate conditions

**PC44.** use the appropriate storage accessories, such as cartons and crates to store the packed products

**PC45.** report discrepancies/concerns to the department supervisor for immediate action

*Carry out the post-production activities*

To be competent, the user/individual on the job must be able to:

**PC46.** • clean and disinfect the work area, tools, equipment and machinery using the recommended  
• cleaning agents

**PC47.** carry out basic repair and maintenance of the tools, equipment and machinery

**PC48.** ensure periodic maintenance of the tools, equipment and machinery as per the manufacturer's instructions

**PC49.** carry out appropriate documentation concerning the drying and dehydration of fruits and vegetables

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

**KU1.** the basic food microbiology

**KU2.** different varieties of fruits and vegetables and their suitability for drying

**KU3.** the selection of produce drying and dehydrating with appropriate qualities, such as highquality, fresh produce with the appropriate ripeness, texture, and flavour

**KU4.** the methods for effectively cleaning and sanitizing produce to remove contaminants and microorganisms

**KU5.** the appropriate methods for peeling, cutting, and blanching the produce for drying and to preserve colour, texture, and nutrients

**KU6.** the production processes for fruit and vegetable drying and dehydration



## Qualification Pack

- KU7.** different techniques for drying produce, such as hot air Drying, Freeze Drying, and Sun Drying
- KU8.** the operation and use of commercial dehydrators
- KU9.** the optimal temperature and humidity levels for the efficient drying of different types of produce without compromising quality
- KU10.** the techniques for managing airflow to ensure uniform drying
- KU11.** the drying duration for different produce to achieve the desired moisture content
- KU12.** the methods for measuring moisture content to ensure the produce is adequately dried
- KU13.** the physical evaluation of dried produce based on appearance, texture, and flavour
- KU14.** the appropriate packaging materials to protect the dried produce from moisture, light, and oxygen
- KU15.** the appropriate sealing techniques for sealing packages to maintain the quality of dried produce and extend shelf life
- KU16.** the labelling requirements for the dried produce
- KU17.** the optimal storage conditions to prevent spoilage and maintain the quality of dried produce
- KU18.** efficient inventory management practices to ensure the freshness of produce
- KU19.** the operation, use and basic maintenance of equipment used for drying and dehydrating produce, such as dryers and dehydrators, peelers, slicers, blanchers, packaging machines, etc.
- KU20.** the innovative techniques relevant to drying and dehydrating produce, such as microwaveassisted drying, infrared drying, vacuum drying, Modified Atmosphere Packaging (MAP), etc.
- KU21.** the techniques for enhancing the flavour of dried produce, such as the addition of natural flavours or using sugar syrups
- KU22.** the procedures for disposal of waste from agricultural produce
- KU23.** the applicable documentation requirements

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant guides and literature to get the latest information about the field of work
- GS3.** communicate clearly and politely
- GS4.** perform basic calculations
- GS5.** listen attentively to understand the instructions being given
- GS6.** identify solutions to work-related issues
- GS7.** plan and prioritize tasks to ensure timely completion
- GS8.** make quick decisions in case of an emergency/ accident

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Wash fruits and vegetables</i>	<b>3.5</b>	<b>6</b>	-	<b>2</b>
<b>PC1.</b> check the weight and quality of fruits and vegetables received from the supplier/vendor based on appearance, colour, texture, maturity, etc.	-	-	-	-
<b>PC2.</b> fill in the washing tank up to the recommended level and dump fruits and vegetables into it for washing	-	-	-	-
<b>PC3.</b> immerse and wash fruits and vegetables appropriately in water to remove dirt, soil, etc.	-	-	-	-
<b>PC4.</b> transfer fruits safely from the washing tank to the washing line conveyor	-	-	-	-
<b>PC5.</b> wash fruits and vegetables appropriately with chlorinated or ozonated water	-	-	-	-
<b>PC6.</b> rinse fruits and vegetables thoroughly with fresh water	-	-	-	-
<i>Sort, peel, slice and blanch fruits and vegetables</i>	<b>5.5</b>	<b>10</b>	-	<b>3.5</b>
<b>PC7.</b> sort fruits and vegetables and remove the unsuitable ones, e.g. damaged, blemished and rotten fruits and vegetables	-	-	-	-
<b>PC8.</b> grade fruits and vegetables on the basis of different sizes	-	-	-	-
<b>PC9.</b> remove the peel or core of fruits and vegetables	-	-	-	-
<b>PC10.</b> prepare the lye solution using lye chemical and water in the recommended quantity at the appropriate pressure and temperature	-	-	-	-
<b>PC11.</b> remove the skin or membrane of fruits and vegetables using lye solution, as appropriate	-	-	-	-
<b>PC12.</b> carry out steam peeling of fruits and vegetables, as appropriate	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> chop/ cut/ slice fruits and vegetables to the specified size and shape using the appropriate tools and equipment	-	-	-	-
<b>PC14.</b> carry out blanching of different types of fruits and vegetables for the appropriate duration	-	-	-	-
<b>PC15.</b> examine the blanched fruits and vegetables visually and through feel/texture to determine the adequacy of softening	-	-	-	-
<i>Treat fruits and vegetables with Sulphur</i>	<b>2</b>	<b>3</b>	-	<b>1</b>
<b>PC16.</b> spread the relevant fruits and vegetables uniformly on trays for the application of Sulphur	-	-	-	-
<b>PC17.</b> use the recommended quantity of Sulphur to generate Sulphur fumes or prepare Sulphur mix in water	-	-	-	-
<b>PC18.</b> carry out Sulphur treatment of fruits and vegetables by exposing them to Sulphur fumes or water mixed with Sulphur for the recommended duration	-	-	-	-
<i>Dry fruits and vegetables under the sun</i>	<b>3</b>	<b>5</b>	-	<b>2</b>
<b>PC19.</b> weigh the pre-processed fruits and vegetables and spread them uniformly over trays for drying	-	-	-	-
<b>PC20.</b> arrange the trays loaded with fruits and vegetables in the drying area/yard for exposure to direct sunlight	-	-	-	-
<b>PC21.</b> maintain fruits and vegetables under sunlight for an appropriate duration, depending on the intensity of sunlight	-	-	-	-
<b>PC22.</b> check the fruits and vegetables for the removal of moisture and complete dryness	-	-	-	-
<b>PC23.</b> identify and remove unwanted particles from the dried fruits and vegetables	-	-	-	-
<i>Hot air dry fruits and vegetables</i>	<b>3.5</b>	<b>6</b>	-	<b>3</b>

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC24.</b> set the appropriate hot air drier temperature and duration for drying various types of fruits and vegetables	-	-	-	-
<b>PC25.</b> dry fruits and vegetables using a hot air dryer by exposing them to hot air for the recommended duration	-	-	-	-
<b>PC26.</b> cool the dry fruit and vegetables under the fan at an appropriate speed in the cooling area	-	-	-	-
<b>PC27.</b> dry fruits and vegetables using the tunnel drier, as required, maintaining the recommended tunnel drier parameters	-	-	-	-
<b>PC28.</b> check the colour, appearance, dryness, and firmness of fruits and vegetables after tunnel drying to ensure conformance to the applicable standards	-	-	-	-
<b>PC29.</b> cool the dried fruits and vegetables in the cooling area, by maintaining the appropriate temperature	-	-	-	-
<i>Freeze dry fruits and vegetables</i>	<b>3</b>	<b>5</b>	-	<b>2.5</b>
<b>PC30.</b> set the appropriate temperature and duration for the freezing room	-	-	-	-
<b>PC31.</b> maintain different types of fruits and vegetables in the freezing room for the recommended duration for the optimum freezing	-	-	-	-
<b>PC32.</b> identify and remove the fruits and vegetables that do not conform to the applicable standards	-	-	-	-
<b>PC33.</b> freeze-dry fruits and vegetables in the freeze-drying chamber under the appropriate conditions for the recommended duration	-	-	-	-
<b>PC34.</b> check the colour, flavour, appearance, and dryness of fruits and vegetables after freeze-drying to ensure conformance to the applicable standards	-	-	-	-
<i>Inspect, pack and store dried/dehydrated fruits and vegetables</i>	<b>6.5</b>	<b>11</b>	-	<b>5</b>

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC35.</b> check the dry fruits and vegetables and sort them based on applicable parameters, such as size, shape, colour, maturity, and variety	-	-	-	-
<b>PC36.</b> transfer the dried/ dehydrated products to the packaging machine for packing	-	-	-	-
<b>PC37.</b> load appropriate packing materials in the packaging machine	-	-	-	-
<b>PC38.</b> <ul style="list-style-type: none"> <li>• set the packing quantity, and the date coding machine for date code details, e.g. batch</li> <li>• number, date of manufacture, date of expiry, etc.</li> </ul>	-	-	-	-
<b>PC39.</b> fill and seal the measured quantity of finished products using the packaging machine	-	-	-	-
<b>PC40.</b> check the weight of packed product periodically to ensure its conformance to the applicable standards	-	-	-	-
<b>PC41.</b> carry out labelling of the packed fruits and vegetables with the required information using the appropriate equipment	-	-	-	-
<b>PC42.</b> sample the packed fruits and vegetables and coordinate their quality analysis with the quality testing lab to ensure conformance with the applicable quality standards	-	-	-	-
<b>PC43.</b> store the packed fruits and vegetables in a hygienic storage under the appropriate conditions	-	-	-	-
<b>PC44.</b> use the appropriate storage accessories, such as cartons and crates to store the packed products	-	-	-	-
<b>PC45.</b> report discrepancies/concerns to the department supervisor for immediate action	-	-	-	-
<i>Carry out the post-production activities</i>	<b>3</b>	<b>4</b>	-	<b>1</b>
<b>PC46.</b> <ul style="list-style-type: none"> <li>• clean and disinfect the work area, tools, equipment and machinery using the recommended</li> <li>• cleaning agents</li> </ul>	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC47.</b> carry out basic repair and maintenance of the tools, equipment and machinery	-	-	-	-
<b>PC48.</b> ensure periodic maintenance of the tools, equipment and machinery as per the manufacturer's instructions	-	-	-	-
<b>PC49.</b> carry out appropriate documentation concerning the drying and dehydration of fruits and vegetables	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N0118
<b>NOS Name</b>	Dry/ Dehydrate fruits and vegetables
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables, Bread and Bakery, Packaged Goods
<b>Occupation</b>	Processing-Fruits and Vegetables
<b>NSQF Level</b>	4
<b>Credits</b>	3
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	22/10/2024
<b>Next Review Date</b>	22/10/2027
<b>NSQC Clearance Date</b>	22/10/2024

## Qualification Pack

### FIC/N0122: Produce fruit pulp from various fruits

#### Description

This unit is about producing fruit pulp from various fruits as per the applicable specifications and organizational standards.

#### Scope

The scope covers the following :

- Ripen the fruits
- Wash and sort fruits
- Peel/de seed/ destone fruits
- Pulp fruits and pre-cook the pulp
- Carry out aseptic sterilization and packing of fruit pulp
- Can the fruit pulp
- Carry out the post-production activities

#### Elements and Performance Criteria

##### *Ripen the fruits*

To be competent, the user/individual on the job must be able to:

- PC1.** check the weight and quality of fruits received from the supplier/vendor based on appearance, colour, texture, maturity, etc.
- PC2.** pre-cool the fruits at the recommended temperature and relative humidity for the appropriate duration
- PC3.** use the recommended quantity of ethylene for ripening fruits
- PC4.** maintain optimal air circulation for uniform ethylene flow for fruit ripening
- PC5.** maintain the recommended temperature and relative humidity for the appropriate duration during fruit ripening
- PC6.** follow the proper measures to control the carbon dioxide and ethylene levels during fruit ripening
- PC7.** check the quality of fruits after ripening and take appropriate corrective measures, as required

##### *Wash and sort fruits*

To be competent, the user/individual on the job must be able to:

- PC8.** wash fruits to remove any impurities, such as dirt, soil, etc.
- PC9.** rinse fruits thoroughly with fresh water
- PC10.** sort fruits based on applicable parameters
- PC11.** identify and remove damaged, blemished and rotten fruits
- PC12.** dispose of the fruits unsuitable for pulping, following the organisational procedure

##### *Peel/De-seed/Destone the fruits*

To be competent, the user/individual on the job must be able to:



## Qualification Pack

- PC13.** remove the peel or core of fruits
- PC14.** carry out steam peeling, as required, maintaining the appropriate steam pressure
- PC15.** wash the peeled fruits to ensure their cleanliness before pulping
- PC16.** carry out chopping/ cutting/ slicing of fruits to the required size
- PC17.** carry out de-stoning of the relevant fruits
- PC18.** collect and dispose of the waste generated during the removal of fruit peel, seeds and stones

### *Pulp fruits and pre-cook the pulp*

To be competent, the user/individual on the job must be able to:

- PC19.** pulp fruits using the pulping machine or other appropriate tools and equipment
- PC20.** sieve the fruit pulp to the required fineness
- PC21.** check the refined pulp to ensure it is free from seeds and fiber
- PC22.** pre-cook the fruit pulp at the recommended temperature for an appropriate duration
- PC23.** check the texture of the pulp to ensure proper pre-cooking
- PC24.** identify and remove black specks from fruit pulp
- PC25.** coordinate with quality-testing lab for the quality analysis of fruit pulp
- PC26.** remove air from pulp following the appropriate method
- PC27.** carry out evaporation to reduce the water content in the pulp

### *Carry out aseptic sterilization and packing of fruit pulp*

To be competent, the user/individual on the job must be able to:

- PC28.**
  - sterilize fruit pulp at the recommended temperature for an appropriate duration as per the
  - organizational standards
- PC29.** store the sterilized pulp under the recommended conditions before packing
- PC30.** pack the fruit pulp using the appropriate aseptic packing material to preserve the pulp's quality for extended periods
- PC31.** ensure proper sealing of the fruit pulp packing material
- PC32.** check the weight of the packed fruit pulp to ensure the correct weight as per the organizational standards
- PC33.** label the packaging with the necessary information, such as batch number, manufacturing date, and expiry date, in compliance with the applicable regulations
- PC34.** store the packed fruit pulp in a hygienic storage with the appropriate conditions

### *Can the fruit pulp*

To be competent, the user/individual on the job must be able to:

- PC35.** fill in the cans with pre-cooked/pre-heated fruit pulp, ensuring the cans are sterilized
- PC36.** remove the air from fruit pulp cans to create a vacuum and extend the shelf life
- PC37.** seal the cans appropriately to prevent contamination
- PC38.** sterilize, cool and dry the sealed cans following the recommended methods
- PC39.** label the sealed fruit pulp cans with the necessary information in compliance with the applicable regulations
- PC40.** store the fruit pulp cans under the recommended conditions to extend their shelf life
- PC41.** report any discrepancies/concerns to the department supervisor for immediate action

### *Carry out the post-production activities*

## Qualification Pack

To be competent, the user/individual on the job must be able to:

- PC42.** clean and disinfect the work area, tools, equipment and machinery using the recommended cleaning agents
- PC43.** carry out basic repair and maintenance of the tools, equipment and machinery
- PC44.** ensure periodic maintenance of the tools, equipment and machinery as per the manufacturer's instructions
- PC45.** carry out appropriate documentation concerning the pulping, packing, canning and storage of fruit pulp

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** procedure to receive and check fruits from the supplier/vendor for quality and quantity
- KU2.** physical parameters such as appearance, colour, texture, maturity, etc. to check the quality of the fruit
- KU3.** methods to monitor the temperature of the fruits to be cooled to the required temperature
- KU4.** operating procedure of the ventilation system, ladder conveyor, chopper/cutter/slicer machine, aseptic packaging machineries, and canning machineries
- KU5.** SOP to wash fruits, cut fruits manually, dispose of the waste, replace damaged or clogged filter screen of pulper cum finisher/pulper refiner machine, transfer quality lab analysis of the products, send filled aseptic bags to the storage area, storing raw materials, packaging materials and finished goods
- KU6.** visual inspection procedure for manually washed fruits
- KU7.** peel/core removal process of the fruits
- KU8.** basics and concept of fruit pulp extraction process
- KU9.** process to collect refined fruit pulp into collection tank
- KU10.** methods to examine pre-cooked fruits pulp
- KU11.** aseptic packaging process and parameters
- KU12.** procedure to monitor and maintain steam pressure
- KU13.** canning process and parameters
- KU14.** how to fill pulp into the cans
- KU15.** types and category of packaging materials, and packaging machineries
- KU16.** post-production cleaning and maintenance procedures of the production equipment
- KU17.** quality parameters, basic food microbiology, and quality assessment based on physical parameters
- KU18.** sanitizers and disinfectants and its handling and storing procedure
- KU19.** organizational and FSSAI laws and regulations on product, packaging, and labelling
- KU20.** the applicable food safety regulations and standards
- KU21.** the applicable labelling requirements and regulations
- KU22.** the appropriate storage conditions required for storing the processed and packed fruit pulp
- KU23.** the new technologies relevant fruit pulp production, such as enzymatic treatment, biotechnology, etc.

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- KU24.** the use and basic maintenance of the equipment used in fruit pulping, such as pulping machines, pasteurizers and sterilizer, packaging machine, etc.
- KU25.** the appropriate packaging materials to protect fruit pulp from contamination and spoilage
- KU26.** the types and categories of packaging materials suitable for packing processed fruit pulp, including aseptic packaging
- KU27.** the handling of aseptic packaging machinery
- KU28.** the fruit pulp packaging and canning processes and parameters
- KU29.** the use of canning machinery
- KU30.** the procedure for the disposal of waste generated during the pulping of fruits
- KU31.** the quality parameters applicable to the pulping of fruits
- KU32.** the use of appropriate packing machinery to pack processed fruit pulp
- KU33.** the applicable documentation requirements

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant guides and literature to get the latest information about the field of work
- GS3.** communicate clearly and politely
- GS4.** perform basic calculations
- GS5.** listen attentively to understand the instructions being given
- GS6.** identify solutions to work-related issues
- GS7.** plan and prioritize tasks to ensure timely completion
- GS8.** make quick decisions in case of an emergency/ accident

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ripen the fruits</i>	<b>5</b>	<b>8</b>	-	<b>3</b>
<b>PC1.</b> check the weight and quality of fruits received from the supplier/vendor based on appearance, colour, texture, maturity, etc.	-	-	-	-
<b>PC2.</b> pre-cool the fruits at the recommended temperature and relative humidity for the appropriate duration	-	-	-	-
<b>PC3.</b> use the recommended quantity of ethylene for ripening fruits	-	-	-	-
<b>PC4.</b> maintain optimal air circulation for uniform ethylene flow for fruit ripening	-	-	-	-
<b>PC5.</b> maintain the recommended temperature and relative humidity for the appropriate duration during fruit ripening	-	-	-	-
<b>PC6.</b> follow the proper measures to control the carbon dioxide and ethylene levels during fruit ripening	-	-	-	-
<b>PC7.</b> check the quality of fruits after ripening and take appropriate corrective measures, as required	-	-	-	-
<i>Wash and sort fruits</i>	<b>3</b>	<b>5</b>	-	<b>2</b>
<b>PC8.</b> wash fruits to remove any impurities, such as dirt, soil, etc.	-	-	-	-
<b>PC9.</b> rinse fruits thoroughly with fresh water	-	-	-	-
<b>PC10.</b> sort fruits based on applicable parameters	-	-	-	-
<b>PC11.</b> identify and remove damaged, blemished and rotten fruits	-	-	-	-
<b>PC12.</b> dispose of the fruits unsuitable for pulping, following the organisational procedure	-	-	-	-
<i>Peel/De-seed/Destone the fruits</i>	<b>4</b>	<b>7</b>	-	<b>3</b>
<b>PC13.</b> remove the peel or core of fruits	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC14.</b> carry out steam peeling, as required, maintaining the appropriate steam pressure	-	-	-	-
<b>PC15.</b> wash the peeled fruits to ensure their cleanliness before pulping	-	-	-	-
<b>PC16.</b> carry out chopping/ cutting/ slicing of fruits to the required size	-	-	-	-
<b>PC17.</b> carry out de-stoning of the relevant fruits	-	-	-	-
<b>PC18.</b> collect and dispose of the waste generated during the removal of fruit peel, seeds and stones	-	-	-	-
<i>Pulp fruits and pre-cook the pulp</i>	<b>6</b>	<b>10</b>	-	<b>4</b>
<b>PC19.</b> pulp fruits using the pulping machine or other appropriate tools and equipment	-	-	-	-
<b>PC20.</b> sieve the fruit pulp to the required fineness	-	-	-	-
<b>PC21.</b> check the refined pulp to ensure it is free from seeds and fiber	-	-	-	-
<b>PC22.</b> pre-cook the fruit pulp at the recommended temperature for an appropriate duration	-	-	-	-
<b>PC23.</b> check the texture of the pulp to ensure proper pre-cooking	-	-	-	-
<b>PC24.</b> identify and remove black specks from fruit pulp	-	-	-	-
<b>PC25.</b> coordinate with quality-testing lab for the quality analysis of fruit pulp	-	-	-	-
<b>PC26.</b> remove air from pulp following the appropriate method	-	-	-	-
<b>PC27.</b> carry out evaporation to reduce the water content in the pulp	-	-	-	-
<i>Carry out aseptic sterilization and packing of fruit pulp</i>	<b>5</b>	<b>8</b>	-	<b>3</b>

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC28.</b> • sterilize fruit pulp at the recommended temperature for an appropriate duration as per the • organizational standards	-	-	-	-
<b>PC29.</b> store the sterilized pulp under the recommended conditions before packing	-	-	-	-
<b>PC30.</b> pack the fruit pulp using the appropriate aseptic packing material to preserve the pulp's quality for extended periods	-	-	-	-
<b>PC31.</b> ensure proper sealing of the fruit pulp packing material	-	-	-	-
<b>PC32.</b> check the weight of the packed fruit pulp to ensure the correct weight as per the organizational standards	-	-	-	-
<b>PC33.</b> label the packaging with the necessary information, such as batch number, manufacturing date, and expiry date, in compliance with the applicable regulations	-	-	-	-
<b>PC34.</b> store the packed fruit pulp in a hygienic storage with the appropriate conditions	-	-	-	-
<i>Can the fruit pulp</i>	<b>5</b>	<b>8</b>	-	<b>3</b>
<b>PC35.</b> fill in the cans with pre-cooked/pre-heated fruit pulp, ensuring the cans are sterilized	-	-	-	-
<b>PC36.</b> remove the air from fruit pulp cans to create a vacuum and extend the shelf life	-	-	-	-
<b>PC37.</b> seal the cans appropriately to prevent contamination	-	-	-	-
<b>PC38.</b> sterilize, cool and dry the sealed cans following the recommended methods	-	-	-	-
<b>PC39.</b> label the sealed fruit pulp cans with the necessary information in compliance with the applicable regulations	-	-	-	-
<b>PC40.</b> store the fruit pulp cans under the recommended conditions to extend their shelf life	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC41.</b> report any discrepancies/concerns to the department supervisor for immediate action	-	-	-	-
<i>Carry out the post-production activities</i>	<b>2</b>	<b>4</b>	-	<b>2</b>
<b>PC42.</b> clean and disinfect the work area, tools, equipment and machinery using the recommended cleaning agents	-	-	-	-
<b>PC43.</b> carry out basic repair and maintenance of the tools, equipment and machinery	-	-	-	-
<b>PC44.</b> ensure periodic maintenance of the tools, equipment and machinery as per the manufacturer's instructions	-	-	-	-
<b>PC45.</b> carry out appropriate documentation concerning the pulping, packing, canning and storage of fruit pulp	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>50</b>	-	<b>20</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N0122
<b>NOS Name</b>	Produce fruit pulp from various fruits
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables
<b>Occupation</b>	Processing-Fruits and Vegetables
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	22/10/2024
<b>Next Review Date</b>	22/10/2027
<b>NSQC Clearance Date</b>	22/10/2024



## Qualification Pack

### FIC/N0129: Sort, grade, pack and store the produce

#### Description

This unit is about sorting and grading various agricultural produce. It also includes packing and storing the produce before its transportation

#### Scope

The scope covers the following :

- Wash and dry the produce
- Sort and grade the produce
- Pack and store the produce
- Carry out the post-production activities

#### Elements and Performance Criteria

##### *Wash and dry the produce*

To be competent, the user/individual on the job must be able to:

- PC1.** retrieve agricultural produce from the warehouse/cold storage
- PC2.** check the quality of produce based on physical and sensory parameters
- PC3.** set controls for float/water tank and pump water to the required level for washing produce
- PC4.** use chlorine in the recommended quantity in the water to kill pathogenic and non-pathogenic micro-organisms
- PC5.** wash the produce to remove impurities including chlorine from their surface
- PC6.** dry the washed fruits and vegetables following the appropriate method
- PC7.** clean the produce unsuitable for water treatment
- PC8.** apply waxing treatment depending on the type of produce to reduce water loss and improve appearance

##### *Sort and grade produce*

To be competent, the user/individual on the job must be able to:

- PC9.** identify and remove the severely damaged produce
- PC10.** separate the unwanted material from the produce following the appropriate method
- PC11.** remove dry foliage attached to the onion and garlic bulbs and sort them based on their size using measurement rings of different diameters
- PC12.** sort the produce based on colour, and record the readings
- PC13.** grade the produce based on diameter, length, weight and size
- PC14.** sample the produce and coordinate their quality analysis with the quality-testing lab, as required
- PC15.** collect the sorted and graded produce using appropriate accessories, such as baskets, tubs, crates, etc
- PC16.** identify and report any malfunctions/ discrepancies to the supervisor and take appropriate corrective action, as instructed

## Qualification Pack

### *Pack and store the produce*

To be competent, the user/individual on the job must be able to:

- PC17.** carry the containers with sorted and graded produce to the packaging area safely
- PC18.** carry out primary and secondary packaging of the produce, as applicable
- PC19.** carry out labelling of the produce with the necessary information as per the applicable FSSAI guidelines, e.g. net weight, batch code, date of packing, best before date, storage conditions, country of origin, etc
- PC20.** store the packed produce in a clean and hygienic storage area, under the recommended temperature and humidity
- PC21.** use appropriate storage accessories, such as cartons, crates, gunny bags, and mesh, to store the packed produce
- PC22.** follow the organisational procedure to dispatch the packed produce to their destination using a suitable transportation method

### *Carry out post-production activities*

To be competent, the user/individual on the job must be able to:

- PC23.** clean and disinfect the work area, tools, equipment and machinery using the recommended cleaning agents
- PC24.** follow the appropriate Clean-in-place (CIP) and Clean-out-of-Place (COP) methods
- PC25.** carry out basic repair and maintenance of the tools, equipment and machinery
- PC26.** ensure periodic maintenance of the tools, equipment and machinery as per the manufacturer's instructions
- PC27.** carry out appropriate documentation concerning the sorting, grading, packing and storage of fruits and vegetables

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the basic food microbiology
- KU2.** the laws and regulations applicable to food handling, safety, packaging and labelling
- KU3.** the Agricultural and Processed Food Products Export Development Authority (APEDA) & AgMark (Agricultural Marketing) standards
- KU4.** the maturity index of different fruits and vegetables
- KU5.** the factors affecting the maturity of fruits and vegetables
- KU6.** the variety, characteristics and quality of different types of fruits and vegetables, including physical and sensory characteristics
- KU7.** the washing process and relevant chemicals used for washing produce
- KU8.** the benefits and process of Ozone washing of fruits and vegetables
- KU9.** the pack house handling procedures
- KU10.** the use of modern equipment in fruit and vegetable sorting and grading operations, e.g. electronic grader, mechanical grader, weight grader, electronic colour sorter, hydro-cooling, forced-air cooling, and vacuum cooling machines, mechanical sieving machine, ripening, de-stoner and de-leafer, automatic packaging machines, labelling equipment, etc

## Qualification Pack

- KU11.** the new and relevant technologies, such as air blowing, cameras, optical sorters and Near-Infrared (NIR) spectroscopy, laser and X-ray sorting machine, etc.
- KU12.** different grade designations of the agricultural produce according to AgMark
- KU13.** the methods to identify rejects of different types of produce
- KU14.** the procedure to handle rejected materials
- KU15.** the process of dilution and concentration of chlorine water
- KU16.** how to operate and control the conveyor belt, brushing conveyor and grading line
- KU17.** the optimum use of the high-pressure spray system and dryer
- KU18.** the parameters for the quality assessment of fruits and vegetables during the sorting and grading
- KU19.** how to carry out waxing of fruits and vegetables
- KU20.** how to calibrate different equipment for use, such as electronic colour sorter
- KU21.** the process of randomized and systematic sampling of produce
- KU22.** the importance of labelling produce and the information to be included on labels
- KU23.** different types of packaging material used for packing fresh produce, such as primary and secondary packaging
- KU24.** the controls and operations of different types of packing machines
- KU25.** the use and maintenance of different types of machinery to sort and grade produce
- KU26.** the preventive maintenance of relevant tools, equipment and machinery
- KU27.** the methods to organise pallets in the storage area
- KU28.** the storage procedures for incoming produce, packaging materials and packed produce
- KU29.** the safe use and storage of different types of relevant disinfectants
- KU30.** the relevant cleaning practices, such as Clean-in-place (CIP) and Clean-in-place (CIP) methods
- KU31.** the elements of Good Manufacturing Practices (GMP) and Good Hygiene Practices (GHP) applicable to sorting and grading of produce
- KU32.** the applicable documentation requirements
- KU33.** using sensor technologies (e.g., RGB cameras, NIR spectroscopy) and machine learning models to classify fruits and vegetables by size, color, ripeness, and defects
- KU34.** implementing automated conveyor systems integrated with real-time data analysis and IoT for dynamic sorting and grading adjustments
- KU35.** linking sorting machines with ERP systems to streamline inventory updates, forecast production needs, and ensure product traceability through batch tracking

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to learn about the latest developments in the field of work
- GS3.** listen attentively to understand the information/ instructions being shared by the speaker
- GS4.** communicate clearly and politely with co-workers and clients

## Qualification Pack

- GS5.** coordinate with co-workers to achieve work objectives
- GS6.** prioritize tasks to ensure their timely completion
- GS7.** identify possible disruptions to work and take appropriate preventive measures
- GS8.** make quick decisions to deal with workplace emergencies/ accidents

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Wash and dry the produce</i>	<b>11</b>	<b>20</b>	-	<b>7</b>
<b>PC1.</b> retrieve agricultural produce from the warehouse/cold storage	1	3	-	0.5
<b>PC2.</b> check the quality of produce based on physical and sensory parameters	2	3	-	1
<b>PC3.</b> set controls for float/water tank and pump water to the required level for washing produce	1	3	-	1
<b>PC4.</b> use chlorine in the recommended quantity in the water to kill pathogenic and non-pathogenic micro-organisms	1	2	-	1
<b>PC5.</b> wash the produce to remove impurities including chlorine from their surface	1	2	-	1
<b>PC6.</b> dry the washed fruits and vegetables following the appropriate method	2	2	-	0.5
<b>PC7.</b> clean the produce unsuitable for water treatment	1	2	-	1
<b>PC8.</b> apply waxing treatment depending on the type of produce to reduce water loss and improve appearance	2	3	-	1
<i>Sort and grade produce</i>	<b>8</b>	<b>14</b>	-	<b>6</b>
<b>PC9.</b> identify and remove the severely damaged produce	1	2	-	1
<b>PC10.</b> separate the unwanted material from the produce following the appropriate method	1	2	-	0.5
<b>PC11.</b> remove dry foliage attached to the onion and garlic bulbs and sort them based on their size using measurement rings of different diameters	1	1	-	1
<b>PC12.</b> sort the produce based on colour, and record the readings	1	2	-	0.5
<b>PC13.</b> grade the produce based on diameter, length, weight and size	1	2	-	1

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC14.</b> sample the produce and coordinate their quality analysis with the quality-testing lab, as required	1	1	-	0.5
<b>PC15.</b> collect the sorted and graded produce using appropriate accessories, such as baskets, tubs, crates, etc	1	2	-	0.5
<b>PC16.</b> identify and report any malfunctions/ discrepancies to the supervisor and take appropriate corrective action, as instructed	1	2	-	1
<i>Pack and store the produce</i>	<b>6</b>	<b>8</b>	-	<b>4</b>
<b>PC17.</b> carry the containers with sorted and graded produce to the packaging area safely	1	1	-	0.5
<b>PC18.</b> carry out primary and secondary packaging of the produce, as applicable	1	2	-	1
<b>PC19.</b> carry out labelling of the produce with the necessary information as per the applicable FSSAI guidelines, e.g. net weight, batch code, date of packing, best before date, storage conditions, country of origin, etc	1	1	-	0.5
<b>PC20.</b> store the packed produce in a clean and hygienic storage area, under the recommended temperature and humidity	1	1	-	0.5
<b>PC21.</b> use appropriate storage accessories, such as cartons, crates, gunny bags, and mesh, to store the packed produce	1	1	-	0.5
<b>PC22.</b> follow the organisational procedure to dispatch the packed produce to their destination using a suitable transportation method	1	2	-	1
<i>Carry out post-production activities</i>	<b>5</b>	<b>8</b>	-	<b>3</b>
<b>PC23.</b> clean and disinfect the work area, tools, equipment and machinery using the recommended cleaning agents	1	2	-	0.5
<b>PC24.</b> follow the appropriate Clean-in-place (CIP) and Clean-out-of-Place (COP) methods	1	2	-	0.5

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC25.</b> carry out basic repair and maintenance of the tools, equipment and machinery	1	2	-	1
<b>PC26.</b> ensure periodic maintenance of the tools, equipment and machinery as per the manufacturer's instructions	1	1	-	0.5
<b>PC27.</b> carry out appropriate documentation concerning the sorting, grading, packing and storage of fruits and vegetables	1	1	-	0.5
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N0129
<b>NOS Name</b>	Sort, grade, pack and store the produce
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables
<b>Occupation</b>	Sorting and Grading
<b>NSQF Level</b>	3
<b>Credits</b>	6
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	22/10/2024
<b>Next Review Date</b>	22/10/2027
<b>NSQC Clearance Date</b>	22/10/2024



## Qualification Pack

### FIC/N5022: Carry out biscuit production in industrial units

#### Description

This unit is about producing various types of biscuits in industrial units following the applicable processes.

#### Scope

The scope covers the following :

- The scope of this role will include:
- Select and prepare ingredients for production
- Prepare the dough
- Produce and pack biscuits
- Carry out the post-production activities

#### Elements and Performance Criteria

##### *Select and prepare ingredients for production*

To be competent, the user/individual on the job must be able to:

- PC1.** check the production order and formulation for the product
- PC2.** select raw materials based on the applicable criteria for the product/batch
- PC3.** check the quality of each ingredient based on parameters, such as appearance, colour, odour, and texture, to ensure conformance to the applicable standards and specifications
- PC4.** weigh each ingredient and take the specified amount as per the formulation of the product being produced
- PC5.** sift the flour using the flour sifter machine to remove lumps

##### *Prepare the dough*

To be competent, the user/individual on the job must be able to:

- PC6.** mix the ingredients appropriately with the flour at the recommended temperature and speed
- PC7.** knead the dough manually or in a mixing machine, ensuring the appropriate dough temperature
- PC8.** check the viscosity and quality of the dough to ensure it conforms to the applicable specifications
- PC9.** extrude the dough taking appropriate precautions
- PC10.** laminate the dough, as required

##### *Produce and pack biscuits*

To be competent, the user/individual on the job must be able to:

- PC11.** carry out sheeting and rolling of the dough to the required thickness
- PC12.** cut the rolled dough into appropriate shapes depending on the type and design of biscuits being produced
- PC13.** carry out moulding to create specific shapes or designs, as required, e.g. for sandwich biscuits

## Qualification Pack

- PC14.** load the cut or moulded dough pieces into industrial ovens, taking appropriate measures to prevent any damage to them
- PC15.** bake biscuits at the appropriate temperature for an appropriate duration, depending on the type of biscuits
- PC16.** cool the baked biscuits at the recommended temperature to prevent moisture buildup and maintain texture
- PC17.** carry out coating of biscuits with chocolate, sugar, or other toppings, depending on the type of biscuits
- PC18.** sandwich biscuits with appropriate fillings, such as jam, cream, or chocolate, depending on the type of biscuits
- PC19.** check the biscuits for uniformity in size, shape, colour, and texture
- PC20.** identify and remove the defective biscuits, e.g. malformed biscuits
- PC21.** sort and align biscuits for packaging
- PC22.** pack biscuits into appropriate types of packaging, such as wrappers, boxes, and tins
- PC23.** follow appropriate measures during packaging to protect biscuits from moisture
- PC24.** label the packaging with the necessary information, e.g. ingredients, nutritional facts, and manufacturing and expiration dates
- PC25.** store the packed biscuits in a controlled environment to maintain their freshness

### *Carry out the post-production activities*

To be competent, the user/individual on the job must be able to:

- PC26.** clean and disinfect the work area, tools, equipment, and machinery using the recommended cleaning agents
- PC27.** follow the appropriate Clean-in-Place (CIP) and Clean-out-of-Place (COP) procedures
- PC28.** carry out basic repair and maintenance of the tools, equipment, and machinery
- PC29.** report any discrepancies/concerns to the supervisor for immediate resolution
- PC30.** ensure periodic maintenance of the tools, equipment, and machinery as per the manufacturer's instructions
- PC31.** carry out appropriate documentation concerning the baking operations

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the applicable FSSAI food safety and hygiene standards
- KU2.** different types of raw materials, ingredients and finishing materials required for making various types of biscuits
- KU3.** the chemical and physical properties of ingredients like flour, sugar, fats, leavening agents, and flavourings
- KU4.** different baking processes such as mixing, proofing, baking, cooling, and packaging
- KU5.** the production process, process parameters and formulation of different baked products
- KU6.** the reactions that occur during mixing, fermentation, and baking
- KU7.** the use and basic maintenance of the tools and equipment used for baking various products
- KU8.** the benefits of automation in the food industry

## Qualification Pack

- KU9.** • the tools and equipment used for mixing and preparing the ingredients for baking, such as industrial mixers (spiral mixers, planetary mixers, continuous mixers), dough sheeters, dough dividers, dough rounders, proofing cabinets (proofers), scales and weighing equipment, and  
• ingredient feeders
- KU10.** the use of baking equipment, such as deck ovens, rack ovens, tunnel ovens, convection ovens, rotary ovens, etc.
- KU11.** the use of cooling and storage equipment and accessories, such as cooling racks, cooling tunnels, storage bins and containers
- KU12.** the use of slicing and packaging equipment, such as bread slicers, baggers, wrappers, and labelers
- KU13.** the use of fermentation rooms, retarder/proofers, piping and depositing systems, conveyor systems, and sanitation equipment
- KU14.** the use of relevant equipment for quality control, such as moisture meters, temperature probes and sensors, pH meters, and texture analyzers
- KU15.** automation and the relevant control systems, such as Programmable Logic Controllers (PLCs), Human-Machine Interfaces (HMIs), and Data Logging Systems
- KU16.** the appropriate precautions to be taken while preparing bakery products, including the use of relevant PPE
- KU17.** Enterprise Resource Planning (ERP) Systems, Supervisory Control and Data Acquisition (SCADA) Systems, online camera and other methods to monitor the food product quality during production
- KU18.** the quality parameters and standards to be maintained for bakery products
- KU19.** the quality assessment of biscuits based on physical parameters
- KU20.** different types of packaging materials used to pack various types of biscuits
- KU21.** the basics of supply chain management including ingredient sourcing, inventory management, and logistics
- KU22.** the basics of business management, including production planning, cost control, workforce management

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant guides and literature to get the latest information about the field of work
- GS3.** communicate clearly and politely
- GS4.** perform basic calculations
- GS5.** listen attentively to understand the instructions being given
- GS6.** identify solutions to work-related issues
- GS7.** plan and prioritise tasks to ensure timely completion
- GS8.** make quick decisions in case of an emergency/ accident

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Select and prepare ingredients for production</i>	<b>5</b>	<b>10</b>	-	<b>3</b>
<b>PC1.</b> check the production order and formulation for the product	-	-	-	-
<b>PC2.</b> select raw materials based on the applicable criteria for the product/batch	-	-	-	-
<b>PC3.</b> check the quality of each ingredient based on parameters, such as appearance, colour, odour, and texture, to ensure conformance to the applicable standards and specifications	-	-	-	-
<b>PC4.</b> weigh each ingredient and take the specified amount as per the formulation of the product being produced	-	-	-	-
<b>PC5.</b> sift the flour using the flour sifter machine to remove lumps	-	-	-	-
<i>Prepare the dough</i>	<b>5</b>	<b>10</b>	-	<b>3</b>
<b>PC6.</b> mix the ingredients appropriately with the flour at the recommended temperature and speed	-	-	-	-
<b>PC7.</b> knead the dough manually or in a mixing machine, ensuring the appropriate dough temperature	-	-	-	-
<b>PC8.</b> check the viscosity and quality of the dough to ensure it conforms to the applicable specifications	-	-	-	-
<b>PC9.</b> extrude the dough taking appropriate precautions	-	-	-	-
<b>PC10.</b> laminate the dough, as required	-	-	-	-
<i>Produce and pack biscuits</i>	<b>15</b>	<b>20</b>	-	<b>10</b>
<b>PC11.</b> carry out sheeting and rolling of the dough to the required thickness	-	-	-	-
<b>PC12.</b> cut the rolled dough into appropriate shapes depending on the type and design of biscuits being produced	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> carry out moulding to create specific shapes or designs, as required, e.g. for sandwich biscuits	-	-	-	-
<b>PC14.</b> load the cut or moulded dough pieces into industrial ovens, taking appropriate measures to prevent any damage to them	-	-	-	-
<b>PC15.</b> bake biscuits at the appropriate temperature for an appropriate duration, depending on the type of biscuits	-	-	-	-
<b>PC16.</b> cool the baked biscuits at the recommended temperature to prevent moisture buildup and maintain texture	-	-	-	-
<b>PC17.</b> carry out coating of biscuits with chocolate, sugar, or other toppings, depending on the type of biscuits	-	-	-	-
<b>PC18.</b> sandwich biscuits with appropriate fillings, such as jam, cream, or chocolate, depending on the type of biscuits	-	-	-	-
<b>PC19.</b> check the biscuits for uniformity in size, shape, colour, and texture	-	-	-	-
<b>PC20.</b> identify and remove the defective biscuits, e.g. malformed biscuits	-	-	-	-
<b>PC21.</b> sort and align biscuits for packaging	-	-	-	-
<b>PC22.</b> pack biscuits into appropriate types of packaging, such as wrappers, boxes, and tins	-	-	-	-
<b>PC23.</b> follow appropriate measures during packaging to protect biscuits from moisture	-	-	-	-
<b>PC24.</b> label the packaging with the necessary information, e.g. ingredients, nutritional facts, and manufacturing and expiration dates	-	-	-	-
<b>PC25.</b> store the packed biscuits in a controlled environment to maintain their freshness	-	-	-	-
<i>Carry out the post-production activities</i>	<b>5</b>	<b>10</b>	-	<b>4</b>

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC26.</b> clean and disinfect the work area, tools, equipment, and machinery using the recommended cleaning agents	-	-	-	-
<b>PC27.</b> follow the appropriate Clean-in-Place (CIP) and Clean-out-of-Place (COP) procedures	-	-	-	-
<b>PC28.</b> carry out basic repair and maintenance of the tools, equipment, and machinery	-	-	-	-
<b>PC29.</b> report any discrepancies/concerns to the supervisor for immediate resolution	-	-	-	-
<b>PC30.</b> ensure periodic maintenance of the tools, equipment, and machinery as per the manufacturer's instructions	-	-	-	-
<b>PC31.</b> carry out appropriate documentation concerning the baking operations	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N5022
<b>NOS Name</b>	Carry out biscuit production in industrial units
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	
<b>Occupation</b>	Processing-Bread and Bakery
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	22/10/2024
<b>Next Review Date</b>	22/10/2027
<b>NSQC Clearance Date</b>	22/10/2024

## Qualification Pack

### FIC/N8517: Carry out production of spices, curry powder and seasonings

#### Description

This unit is about producing varieties of whole spices, spice powders, curry powders and seasonings as per organizational production requirements.

#### Scope

The scope covers the following :

- The scope covers the following:
- Produce whole spices
- Produce spices and curry powder
- Produce seasonings
- Pack and label spices, curry powder and seasonings
- Carry out the post-production activities

#### Elements and Performance Criteria

##### *Produce whole spices*

To be competent, the user/individual on the job must be able to:

- PC1.** clean unprocessed whole spices to ensure complete removal of dirt and foreign particles
- PC2.** dry the whole spices following the appropriate drying method
- PC3.** cut the whole spices to obtain the powdered whole spices for further processing
- PC4.** sterilize the whole spices following the standard procedure
- PC5.** follow the recommended measures to ensure food safety and prevent contamination
- PC6.** check the quality of processed whole spices based on relevant parameters, such as size, moisture content, colour retention ability, etc.

##### *Produce spices and curry powder*

To be competent, the user/individual on the job must be able to:

- PC7.** sort and grade the whole spices as per production requirements based on colour, size, appearance, etc.
- PC8.** roast the whole spices at the recommended temperature for an appropriate duration
- PC9.** grind the spices into fine powder or coarse granules, depending on the intended use of spices
- PC10.** cool the ground spices adequately
- PC11.** sieve the ground spices and curry powder to remove impurities and achieve a uniform particle size
- PC12.** blend the appropriate quantities of selected spices to produce curry powder with a consistent flavour
- PC13.** sterilize the spices and curry powder at the recommended temperature for an appropriate duration to remove microbial contaminants
- PC14.** dry the spices and curry powder to the appropriate moisture level, following the appropriate drying method



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- PC15.** grade the spices and curry powder based on relevant parameters, e.g. fineness, texture, aroma, flavour, etc.
- PC16.** sample spices and curry powder and coordinate their quality analysis with the quality-testing laboratory to ensure conformance to the applicable standards

### *Produce seasonings*

To be competent, the user/individual on the job must be able to:

- PC17.** mix the relevant ingredients, such as whole spices, salt, oleoresins, flavouring, curry, and ground spices as per type of seasoning to be produced
- PC18.** identify and remove any impurities from the mixture
- PC19.** dry the mixture of ingredients following an appropriate method, to prevent mould growth and preserve the flavours and aromas of the seasonings
- PC20.** grind the dried ingredients to the appropriate fineness to achieve fine powder or coarse granules as per the requirement
- PC21.** follow appropriate measures during grinding to preserve volatile oils responsible for the seasoning's flavour
- PC22.** sieve the ground seasoning using different types of sieves to achieve appropriate grades of seasoning, e.g. fine, medium and coarse
- PC23.** sample the seasoning and coordinate its quality analysis with the quality-testing laboratory

### *Pack and label spices, curry powder and seasonings*

To be competent, the user/individual on the job must be able to:

- PC24.** pouches, to pack spices, curry powder and seasonings
- PC25.** ensure the packaging material is clean and sterilized
- PC26.** pack spices, curry powder and seasonings, taking appropriate measures to prevent moisture absorption and preserve freshness
- PC27.** seal the packaging material, following the appropriate measures to remove air and maintain freshness
- PC28.** carry out labelling of the packaging material with the necessary information as per the applicable FSSAI regulations
- PC29.** check the integrity of the packaging seal to prevent leaks during storage and transportation
- PC30.** store the packed spices, curry powder and seasonings under the recommended temperature and humidity in a hygienic storage
- PC31.** use the appropriate storage accessories, such as pallets, cartons and crates for the safe storage of packed spices, curry powder and seasonings

### *Carry out the post-production activities*

To be competent, the user/individual on the job must be able to:

- PC32.** clean and disinfect the work area, tools, equipment and machinery using the recommended cleaning agents
- PC33.** use and store the recommended disinfectants and sanitizers safely
- PC34.** follow the appropriate Clean-in-Place and Clean-out-of-place (COP) methods
- PC35.** carry out basic repair and maintenance of the tools, equipment and machinery
- PC36.** report any concerns to the supervisor for immediate resolution
- PC37.** ensure periodic maintenance of the tools, equipment and machinery as per the manufacturer's instructions

## Qualification Pack

- PC38.** carry out appropriate documentation concerning the production of spices, curry powder and seasonings
- PC39.** dispose of the waste following the organizational procedure

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the characteristics of different spices
- KU2.** different grades of raw materials used in spice, curry powder and seasoning production
- KU3.** the nutritional benefits of various spices and seasonings.
- KU4.** how different spices and seasoning blends are used in various cuisines
- KU5.** the sequence of operations to be followed for producing various types of spices, curry powder and seasonings
- KU6.** how to clean the whole spices before processing
- KU7.** the importance and process of sterilizing spices, curry powder and seasonings
- KU8.** the appropriate methods for drying spices to prevent spoilage and concentrate flavours
- KU9.** the appropriate grinding techniques for grinding spices into powders while preserving their aromatic properties
- KU10.** how to blend different spices to create curry powders and other seasoning mixes
- KU11.** the appropriate packaging materials and methods to preserve freshness, prevent contamination, and extend shelf life of spices and seasonings
- KU12.** the relevant quality standards and regulations for spices and seasonings
- KU13.** the sensory evaluation of different spices, curry powder and seasonings
- KU14.** how to identify the variances in the characteristics of spices, curry powder and seasonings produced
- KU15.** the appropriate quality certifications for spices
- KU16.** the consumer demand and preferences concerning spices in different regions
- KU17.** the appropriate packaging materials for spices, curry powder and seasonings
- KU18.** the process of packing spices, curry powder and seasonings and the appropriate precautions to be taken during the process
- KU19.** the labelling requirements for spices, curry powder and seasonings
- KU20.** the applicable FSSAI regulations and importance of following them during the production of spices, curry powder and seasonings
- KU21.** different types of packaging defects and the appropriate remedial measures
- KU22.** the appropriate measures to be taken to minimize the hazards related spice, curry powder and seasoning production
- KU23.** the appropriate spice processing methods to reduce environmental impact
- KU24.** the impact of microbial contamination in spice, curry powder and seasoning production and ways to prevent it
- KU25.** the record-keeping and documentation requirements concerning the production of spices, curry powder and seasoning production

## Qualification Pack

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant guides and literature to get the latest information about the field of work
- GS3.** communicate clearly and politely
- GS4.** perform basic calculations
- GS5.** listen attentively to understand the instructions being given
- GS6.** identify solutions to work-related issues
- GS7.** plan and prioritize tasks to ensure timely completion
- GS8.** make quick decisions in case of an emergency/ accident

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Produce whole spices</i>	<b>4.5</b>	<b>8</b>	-	<b>3</b>
<b>PC1.</b> clean unprocessed whole spices to ensure complete removal of dirt and foreign particles	-	-	-	-
<b>PC2.</b> dry the whole spices following the appropriate drying method	-	-	-	-
<b>PC3.</b> cut the whole spices to obtain the powdered whole spices for further processing	-	-	-	-
<b>PC4.</b> sterilize the whole spices following the standard procedure	-	-	-	-
<b>PC5.</b> follow the recommended measures to ensure food safety and prevent contamination	-	-	-	-
<b>PC6.</b> check the quality of processed whole spices based on relevant parameters, such as size, moisture content, colour retention ability, etc.	-	-	-	-
<i>Produce spices and curry powder</i>	<b>8.5</b>	<b>13</b>	-	<b>5</b>
<b>PC7.</b> sort and grade the whole spices as per production requirements based on colour, size, appearance, etc.	-	-	-	-
<b>PC8.</b> roast the whole spices at the recommended temperature for an appropriate duration	-	-	-	-
<b>PC9.</b> grind the spices into fine powder or coarse granules, depending on the intended use of spices	-	-	-	-
<b>PC10.</b> cool the ground spices adequately	-	-	-	-
<b>PC11.</b> sieve the ground spices and curry powder to remove impurities and achieve a uniform particle size	-	-	-	-
<b>PC12.</b> blend the appropriate quantities of selected spices to produce curry powder with a consistent flavour	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> sterilize the spices and curry powder at the recommended temperature for an appropriate duration to remove microbial contaminants	-	-	-	-
<b>PC14.</b> dry the spices and curry powder to the appropriate moisture level, following the appropriate drying method	-	-	-	-
<b>PC15.</b> grade the spices and curry powder based on relevant parameters, e.g. fineness, texture, aroma, flavour, etc.	-	-	-	-
<b>PC16.</b> sample spices and curry powder and coordinate their quality analysis with the quality-testing laboratory to ensure conformance to the applicable standards	-	-	-	-
<i>Produce seasonings</i>	<b>5</b>	<b>9</b>	-	<b>4</b>
<b>PC17.</b> mix the relevant ingredients, such as whole spices, salt, oleoresins, flavouring, curry, and ground spices as per type of seasoning to be produced	-	-	-	-
<b>PC18.</b> identify and remove any impurities from the mixture	-	-	-	-
<b>PC19.</b> dry the mixture of ingredients following an appropriate method, to prevent mould growth and preserve the flavours and aromas of the seasonings	-	-	-	-
<b>PC20.</b> grind the dried ingredients to the appropriate fineness to achieve fine powder or coarse granules as per the requirement	-	-	-	-
<b>PC21.</b> follow appropriate measures during grinding to preserve volatile oils responsible for the seasoning's flavour	-	-	-	-
<b>PC22.</b> sieve the ground seasoning using different types of sieves to achieve appropriate grades of seasoning, e.g. fine, medium and coarse	-	-	-	-
<b>PC23.</b> sample the seasoning and coordinate its quality analysis with the quality-testing laboratory	-	-	-	-
<i>Pack and label spices, curry powder and seasonings</i>	<b>6</b>	<b>10</b>	-	<b>4</b>

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC24.</b> pouches, to pack spices, curry powder and seasonings	-	-	-	-
<b>PC25.</b> ensure the packaging material is clean and sterilized	-	-	-	-
<b>PC26.</b> pack spices, curry powder and seasonings, taking appropriate measures to prevent moisture absorption and preserve freshness	-	-	-	-
<b>PC27.</b> seal the packaging material, following the appropriate measures to remove air and maintain freshness	-	-	-	-
<b>PC28.</b> carry out labelling of the packaging material with the necessary information as per the applicable FSSAI regulations	-	-	-	-
<b>PC29.</b> check the integrity of the packaging seal to prevent leaks during storage and transportation	-	-	-	-
<b>PC30.</b> store the packed spices, curry powder and seasonings under the recommended temperature and humidity in a hygienic storage	-	-	-	-
<b>PC31.</b> use the appropriate storage accessories, such as pallets, cartons and crates for the safe storage of packed spices, curry powder and seasonings	-	-	-	-
<i>Carry out the post-production activities</i>	<b>6</b>	<b>10</b>	-	<b>4</b>
<b>PC32.</b> clean and disinfect the work area, tools, equipment and machinery using the recommended cleaning agents	-	-	-	-
<b>PC33.</b> use and store the recommended disinfectants and sanitizers safely	-	-	-	-
<b>PC34.</b> follow the appropriate Clean-in-Place and Clean-out-of-place (COP) methods	-	-	-	-
<b>PC35.</b> carry out basic repair and maintenance of the tools, equipment and machinery	-	-	-	-
<b>PC36.</b> report any concerns to the supervisor for immediate resolution	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC37.</b> ensure periodic maintenance of the tools, equipment and machinery as per the manufacturer's instructions	-	-	-	-
<b>PC38.</b> carry out appropriate documentation concerning the production of spices, curry powder and seasonings	-	-	-	-
<b>PC39.</b> dispose of the waste following the organizational procedure	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N8517
<b>NOS Name</b>	Carry out production of spices, curry powder and seasonings
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	
<b>Occupation</b>	Processing-Packaged Foods
<b>NSQF Level</b>	3
<b>Credits</b>	2
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	22/10/2024
<b>Next Review Date</b>	22/10/2027
<b>NSQC Clearance Date</b>	22/10/2024



## Qualification Pack

### FIC/N9906: Apply food safety guidelines in Food Processing

#### Description

This unit covers the essential components of food safety, Good Manufacturing Practices (GMP), and personal hygiene in the food industry. It emphasizes the importance of individuals working in the food industry in protecting the health and well-being of consumers by following food safety protocols and procedures and ensuring the production of safe and high-quality food products.

#### Scope

The scope covers the following :

- Apply personal hygiene and follow Good Manufacturing practices at the workplace.
- Implement Food Safety and pre-requisite programs (PRP) at the workplace.

#### Elements and Performance Criteria

##### *Apply personal hygiene and follow Good Manufacturing practices at workplace*

To be competent, the user/individual on the job must be able to:

- PC1.** PC1. follow a site relevant documented procedure for Personal Hygiene and Visitor/ Contractor rules.
- PC2.** PC2. follow work instructions at levels of employees inside a food manufacturing site and ensure that the relevant instructions are well communicated and being followed at the fixed timelines.
- PC3.** PC3. ensure timely participate and carry out the relevant training and awareness sessions on personal hygiene, GMP, and related topics.
- PC4.** PC4. ensure timely medical examination from a prescribed and authorized doctor and comply with the guidelines of Schedule IV as described in Food Safety Standard Authority of India (FSSAI) guidelines.
- PC5.** PC5. fill in data in the daily monitoring checklist related to personal hygiene, food safety, and GMP.
- PC6.**
  - PC6. follow a site-relevant documented procedure and area-wise work instructions for Good Manufacturing Practices (GMP) to be followed on the site.
  - procedure: Hand washing requirements, Gowning & De gowning protocols, cleaning, and sanitation of employee lockers, follow the protocols as laid down in the different categories of processing areas like Low Risk, High Risk, High Care areas, etc.
- PC7.** PC7. follow all validated Do's & Don'ts inside a food manufacturing firm.
- PC8.** PC8. 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.
- PC9.** PC9. refer to the process flow charts, HACCP summary plan, and critical process parameters in each and respective areas of the production line.
- PC10.** PC10. identify the material requirements such as manufacturing equipments, Utensils, and other processing aids, cleaning chemicals, and cleaning work instructions in all the relevant areas of the manufacturing facility. Also, a special focus shall be given to Allergens and their risks. Wherever required, the allergen requirements shall be separately addressed.

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- PC11.** PC11. ensure to properly tag and number all the equipment, machinery, tools, and other processing aids to keep proper traceability of the product being manufactured and handled at the site.
- PC12.** PC12. follow and implement all training and awareness guidelines in the manufacturing area and regularly participate in training effectiveness for evaluation.
- PC13.** PC13. participate in audits and address the aspects of Good Manufacturing Procedures, personal hygiene, and food safety.
- PC14.** PC14. ensure the record keeping and documentation such as Daily Monitoring Sheets, Batch Traceability Records, machine records, product parameters, process control parameters, etc.

### *Implement food safety practices at the workplace*

To be competent, the user/individual on the job must be able to:

- PC15.** PC15. maintain updated facilities, equipment, and tool and design requirements to minimize the risks associated with the products being handled at the site.
- PC16.** PC16. follow the instruction in the raw and packaging materials warehouse and ensure receiving material parameters match all the laid requirements. parameters: Incoming vehicles Visual report, storage, and handling requirements, hazardous and non-hazardous goods, allergens, cross-contamination risks, Quarantine, Accepted & rejected goods, monitoring temperature and humidity, etc.
- PC17.** PC17. follow 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.
- PC18.** PC18. ensure timely check of the critical control points and product parameters.
- PC19.** PC19. record keeping and documentation such as daily monitoring sheets, cleaning sheets, parameters, etc.
- PC20.** PC20. report any food safety and GMP issue to the supervisor, if any.

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** importance of personal hygiene, GMP, visitors & contractor's rules. Associated risk in case of deviation from the standard policies and how the requirement is linked with the site's FSSAI License.
- KU2.** KU2. importance of training and work instruction delivered by the supervisors.
- KU3.** KU3. importance of filling the records and checklists, formats and how to ensure that the timely and effective completion is achieved.
- KU4.** KU4. knowledge of trainings and skills required to perform in food processing premises.
- KU5.** KU5. understand FSSAI Schedule IV requirements of food handlers and PRPs within the processing area
- KU6.** KU6. importance of timely medical examinations and awareness of communicable diseases
- KU7.** Understanding of Do's & Don'ts, intellect mindset to understand the visual illustrations
- KU8.** KU8. understanding about Site Zoning plans.
- KU9.** KU9. awareness of layout which would help to demarcate the defined movements of RM, PM, FG, and wastes generated during the processing of goods. This one lays a framework to launch Good Manufacturing Practices (GMP) successfully and effectively on site.

## Qualification Pack

- KU10.** KU10. understand the manufacturing process, product parameters and process control parameters such as CCPs
- KU11.** KU11. understanding about Hazard Analysis and Critical Control Points (HACCP)
- KU12.** KU12. understanding about Allergens and their types and controls to monitor effective handling of allergen raw materials on site.
- KU13.** KU13. basic understanding of traceability and mock recall
- KU14.** KU14. awareness about Internal & external Audits
- KU15.** KU15. understanding for RCA CAPA, cleaning and sanitation
- KU16.** KU16. awareness about record keeping and data monitoring in various sheets as per organizational requirement

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** GS1. read and comprehend basic content to read labels, charts, signages, symbols and product manuals
- GS2.** GS2. communicate with coworkers appropriately to clarify instructions and other issues
- GS3.** GS3. plan and organize the work schedule, work area, tools, equipment, and materials for improved productivity
- GS4.** GS4. plan and prioritize tasks as per work requirements
- GS5.** GS5. always be punctual and courteous
- GS6.** GS6. good observations and intellect mindset

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Apply personal hygiene and follow Good Manufacturing practices at workplace</i>	<b>22</b>	<b>44</b>	-	<b>6</b>
<b>PC1.</b> PC1. follow a site relevant documented procedure for Personal Hygiene and Visitor/ Contractor rules.	2	4	-	-
<b>PC2.</b> PC2. follow work instructions at levels of employees inside a food manufacturing site and ensure that the relevant instructions are well communicated and being followed at the fixed timelines.	2	4	-	2
<b>PC3.</b> PC3. ensure timely participate and carry out the relevant training and awareness sessions on personal hygiene, GMP, and related topics.	2	4	-	-
<b>PC4.</b> PC4. ensure timely medical examination from a prescribed and authorized doctor and comply with the guidelines of Schedule IV as described in Food Safety Standard Authority of India (FSSAI) guidelines.	2	4	-	-
<b>PC5.</b> PC5. fill in data in the daily monitoring checklist related to personal hygiene, food safety, and GMP.	2	4	-	-
<b>PC6.</b> <ul style="list-style-type: none"> <li>PC6. follow a site-relevant documented procedure and area-wise work instructions for Good Manufacturing Practices (GMP) to be followed on the site.</li> <li>procedure: Hand washing requirements, Gowning &amp; De gowning protocols, cleaning, and sanitation of employee lockers, follow the protocols as laid down in the different categories of processing areas like Low Risk, High Risk, High Care areas, etc.</li> </ul>	2	4	-	2
<b>PC7.</b> PC7. follow all validated Do's & Don'ts inside a food manufacturing firm.	1	2	-	1
<b>PC8.</b> PC8. 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.	2	4	-	-
<b>PC9.</b> PC9. refer to the process flow charts, HACCP summary plan, and critical process parameters in each and respective areas of the production line.	1	2	-	1

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10.</b> PC10. identify the material requirements such as manufacturing equipments, Utensils, and other processing aids, cleaning chemicals, and cleaning work instructions in all the relevant areas of the manufacturing facility. Also, a special focus shall be given to Allergens and their risks. Wherever required, the allergen requirements shall be separately addressed.	2	4	-	-
<b>PC11.</b> PC11. ensure to properly tag and number all the equipment, machinery, tools, and other processing aids to keep proper traceability of the product being manufactured and handled at the site.	1	2	-	-
<b>PC12.</b> PC12. follow and implement all training and awareness guidelines in the manufacturing area and regularly participate in training effectiveness for evaluation.	1	2	-	-
<b>PC13.</b> PC13. participate in audits and address the aspects of Good Manufacturing Procedures, personal hygiene, and food safety.	1	2	-	-
<b>PC14.</b> PC14. ensure the record keeping and documentation such as Daily Monitoring Sheets, Batch Traceability Records, machine records, product parameters, process control parameters, etc.	1	2	-	-
<i>Implement food safety practices at the workplace</i>	<b>8</b>	<b>16</b>	-	<b>4</b>
<b>PC15.</b> PC15. maintain updated facilities, equipment, and tool and design requirements to minimize the risks associated with the products being handled at the site.	2	4	-	-
<b>PC16.</b> PC16. follow the instruction in the raw and packaging materials warehouse and ensure receiving material parameters match all the laid requirements. parameters: Incoming vehicles Visual report, storage, and handling requirements, hazardous and non-hazardous goods, allergens, cross-contamination risks, Quarantine, Accepted & rejected goods, monitoring temperature and humidity, etc.	1	2	-	1

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC17.</b> PC17. follow 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.	2	4	-	2
<b>PC18.</b> PC18. ensure timely check of the critical control points and product parameters.	1	2	-	-
<b>PC19.</b> PC19. record keeping and documentation such as daily monitoring sheets, cleaning sheets, parameters, etc.	1	2	-	1
<b>PC20.</b> PC20. report any food safety and GMP issue to the supervisor, if any.	1	2	-	-
<b>NOS Total</b>	<b>30</b>	<b>60</b>	<b>-</b>	<b>10</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N9906
<b>NOS Name</b>	Apply food safety guidelines in Food Processing
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	3
<b>Credits</b>	1
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	18/02/2025
<b>Next Review Date</b>	18/02/2028
<b>NSQC Clearance Date</b>	18/02/2025

## Qualification Pack

### DGT/VSQ/N0101: Employability Skills (30 Hours)

#### Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

#### Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

#### Elements and Performance Criteria

##### *Introduction to Employability Skills*

To be competent, the user/individual on the job must be able to:

**PC1.** understand the significance of employability skills in meeting the job requirements

##### *Constitutional values – Citizenship*

To be competent, the user/individual on the job must be able to:

**PC2.** identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

##### *Becoming a Professional in the 21st Century*

To be competent, the user/individual on the job must be able to:

**PC3.** explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

##### *Basic English Skills*

To be competent, the user/individual on the job must be able to:

**PC4.** speak with others using some basic English phrases or sentences

##### *Communication Skills*

To be competent, the user/individual on the job must be able to:

**PC5.** follow good manners while communicating with others

**PC6.** work with others in a team



## Qualification Pack

### *Diversity & Inclusion*

To be competent, the user/individual on the job must be able to:

**PC7.** communicate and behave appropriately with all genders and PwD

**PC8.** report any issues related to sexual harassment

### *Financial and Legal Literacy*

To be competent, the user/individual on the job must be able to:

**PC9.** use various financial products and services safely and securely

**PC10.** calculate income, expenses, savings etc.

**PC11.** approach the concerned authorities for any exploitation as per legal rights and laws

### *Essential Digital Skills*

To be competent, the user/individual on the job must be able to:

**PC12.** operate digital devices and use its features and applications securely and safely

**PC13.** use internet and social media platforms securely and safely

### *Entrepreneurship*

To be competent, the user/individual on the job must be able to:

**PC14.** identify and assess opportunities for potential business

**PC15.** identify sources for arranging money and associated financial and legal challenges

### *Customer Service*

To be competent, the user/individual on the job must be able to:

**PC16.** identify different types of customers

**PC17.** identify customer needs and address them appropriately

**PC18.** follow appropriate hygiene and grooming standards

### *Getting ready for apprenticeship & Jobs*

To be competent, the user/individual on the job must be able to:

**PC19.** create a basic biodata

**PC20.** search for suitable jobs and apply

**PC21.** identify and register apprenticeship opportunities as per requirement

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

**KU1.** need for employability skills

**KU2.** various constitutional and personal values

**KU3.** different environmentally sustainable practices and their importance

**KU4.** Twenty first (21st) century skills and their importance

**KU5.** how to use basic spoken English language

**KU6.** Do and dont of effective communication

**KU7.** inclusivity and its importance

**KU8.** different types of disabilities and appropriate communication and behaviour towards PwD

**KU9.** different types of financial products and services

## Qualification Pack

- KU10.** how to compute income and expenses
- KU11.** importance of maintaining safety and security in financial transactions
- KU12.** different legal rights and laws
- KU13.** how to operate digital devices and applications safely and securely
- KU14.** ways to identify business opportunities
- KU15.** types of customers and their needs
- KU16.** how to apply for a job and prepare for an interview
- KU17.** apprenticeship scheme and the process of registering on apprenticeship portal

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** communicate effectively using appropriate language
- GS2.** behave politely and appropriately with all
- GS3.** perform basic calculations
- GS4.** solve problems effectively
- GS5.** be careful and attentive at work
- GS6.** use time effectively
- GS7.** maintain hygiene and sanitisation to avoid infection

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	<b>1</b>	<b>1</b>	-	-
<b>PC1.</b> understand the significance of employability skills in meeting the job requirements	-	-	-	-
<i>Constitutional values – Citizenship</i>	<b>1</b>	<b>1</b>	-	-
<b>PC2.</b> identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	<b>1</b>	<b>3</b>	-	-
<b>PC3.</b> explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
<i>Basic English Skills</i>	<b>2</b>	<b>3</b>	-	-
<b>PC4.</b> speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	<b>1</b>	<b>1</b>	-	-
<b>PC5.</b> follow good manners while communicating with others	-	-	-	-
<b>PC6.</b> work with others in a team	-	-	-	-
<i>Diversity &amp; Inclusion</i>	<b>1</b>	<b>1</b>	-	-
<b>PC7.</b> communicate and behave appropriately with all genders and PwD	-	-	-	-
<b>PC8.</b> report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	<b>3</b>	<b>4</b>	-	-
<b>PC9.</b> use various financial products and services safely and securely	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10.</b> calculate income, expenses, savings etc.	-	-	-	-
<b>PC11.</b> approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
<i>Essential Digital Skills</i>	<b>4</b>	<b>6</b>	-	-
<b>PC12.</b> operate digital devices and use its features and applications securely and safely	-	-	-	-
<b>PC13.</b> use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	<b>3</b>	<b>5</b>	-	-
<b>PC14.</b> identify and assess opportunities for potential business	-	-	-	-
<b>PC15.</b> identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	<b>2</b>	<b>2</b>	-	-
<b>PC16.</b> identify different types of customers	-	-	-	-
<b>PC17.</b> identify customer needs and address them appropriately	-	-	-	-
<b>PC18.</b> follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship &amp; Jobs</i>	<b>1</b>	<b>3</b>	-	-
<b>PC19.</b> create a basic biodata	-	-	-	-
<b>PC20.</b> search for suitable jobs and apply	-	-	-	-
<b>PC21.</b> identify and register apprenticeship opportunities as per requirement	-	-	-	-
<b>NOS Total</b>	<b>20</b>	<b>30</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	DGT/VSQ/N0101
<b>NOS Name</b>	Employability Skills (30 Hours)
<b>Sector</b>	Cross Sectoral
<b>Sub-Sector</b>	Professional Skills
<b>Occupation</b>	Employability
<b>NSQF Level</b>	2
<b>Credits</b>	1
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	08/05/2025
<b>Next Review Date</b>	08/05/2028
<b>NSQC Clearance Date</b>	08/05/2025

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each Element/ PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

## Qualification Pack

**Minimum Aggregate Passing % at QP Level : 70**

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

## Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
FIC/N9026.Prepare for production	30	70	-	-	100	10
FIC/N0103.Produce Squash and Juice	30	50	0	20	100	10
FIC/N0209.Produce a variety of pickles	30	50	0	20	100	10
FIC/N0210.Carry out production of jam, jelly and ketchup	30	50	0	20	100	10
FIC/N0118.Dry/ Dehydrate fruits and vegetables	30	50	0	20	100	10
FIC/N0122.Produce fruit pulp from various fruits	30	50	0	20	100	10
FIC/N0129.Sort, grade, pack and store the produce	30	50	0	20	100	10
FIC/N5022.Carry out biscuit production in industrial units	30	50	0	20	100	10
FIC/N8517.Carry out production of spices, curry powder and seasonings	30	50	0	20	100	10
FIC/N9906.Apply food safety guidelines in Food Processing	30	60	-	10	100	5
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	5
<b>Total</b>	<b>320</b>	<b>560</b>	<b>-</b>	<b>170</b>	<b>1050</b>	<b>100</b>

## Qualification Pack

### Acronyms

<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training
<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skill Qualification Framework
<b>QP</b>	Qualification Pack
<b>TVET</b>	Technical and Vocational Education and Training
<b>CIP</b>	Clean In Place
<b>COP</b>	Clean Out Of Place
<b>ERP</b>	Enterprise Resource Planning
<b>FIFO</b>	First In First Out
<b>FEFO</b>	First Expiry First Out
<b>FSSAI</b>	Food Safety and Standards Authority of India
<b>GMP</b>	Good Manufacturing Practices
<b>GHP</b>	GHP Good Hygiene Practices
<b>HACCP</b>	Hazard Analysis and Critical Control Point
<b>PwD</b>	Persons with Disability
<b>MLF</b>	Malolactic Fermentation
<b>TA</b>	Titratable Acid
<b>pH</b>	Power of Hydrogen
<b>VACCP</b>	Vulnerability Assessment Critical Control Points
<b>TACCP</b>	Threat Assessment Critical Control Points
<b>RCA</b>	Root Cause Analysis

## Qualification Pack

<b>CAPA</b>	Corrective Action Preventive Action
<b>PPE</b>	Personal Protective Equipment
<b>CPR</b>	Cardio-Pulmonary Resuscitation
<b>SOPs</b>	Standard Operating Procedures
<b>PwD</b>	People with Disabilities



## Qualification Pack

### Glossary

<b>Sector</b>	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
<b>Scope</b>	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

## Qualification Pack

<b>Knowledge and Understanding (KU)</b>	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
<b>Organisational Context</b>	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
<b>Electives</b>	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
<b>Options</b>	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.
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