Qualification Pack

Multi Skill Technician (Food Processing)

QP Code: FIC/Q9007

Version: 2.0

NSQF Level: 4

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Qualification Pack

FIC/Q9007: Multi Skill Technician (Food Processing)

Brief Job Description

A Multi Skill Technician is able to perform multiple roles like sorting, grading, processing and canning of various types of fruits and vegetables to produce pickle, jam, jelly, squash, ketchup and juices. The person can also produce spice products and baked products like breads, puffs, cookies, cakes/ pastries, desserts, specialty baked products etc.

Personal Attributes

A Multi Skill Technician must have the ability to plan, organize, prioritize, calculate and handle pressure. In addition, the individual must have stamina to be able to stand for long hours, have personal and professional hygiene and an understanding of food safety standards.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. FIC/N0103: Produce Squash and Juice
2. FIC/N0107: Pickle making
3. FIC/N0111: Produce jam, jelly and ketchup
4. FIC/N0118: Dry/ Dehydrate fruits and vegetables
5. FIC/N0122: Produce fruit pulp from various fruits
6. FIC/N0126: Can fruits and vegetables
7. FIC/N0129: Sort and grade produce
8. FIC/N5007: Produce baked products in artisan bakeries and patisseries
9. FIC/N8509: Produce spice products
10. FIC/N9001: Ensure food safety, hygiene and sanitation for processing food products
11. FIC/N9023: Prepare and maintain work area and process machineries for the production of final products
12. FIC/N9024: Complete documentation and record keeping related to production of final products
13. FIC/N9025: Working in a team and learning team work ethics
14. FIC/N9005: Evaluate and develop entrepreneur skills

Qualification Pack (QP) Parameters

Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Bread and Bakery
Occupation	Processing-Bread and Bakery, Processing-Fruits and Vegetables, Processing-Packaged Foods
Country	India
NSQF Level	4
Credits	29
Aligned to NCO/ISCO/ISIC Code	NCO-2004/7412.15
Minimum Educational Qualification & Experience	10th Class with 2 Years of experience Any course OR 10th Class with 2 Years of experience Relevant Experience OR 10th Class/I.T.I (2 years) OR 12th Class (any stream)
Minimum Level of Education for Training in School	10th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	30/09/2021
Next Review Date	29/09/2024
NSQC Approval Date	30/09/2021
Version	2.0
Reference code on NQR	2021/FI/FICSI/04511
NQR Version	1

FIC/N0103: Produce Squash and Juice

Description

This unit is about producing squash and juice using various machineries as per specifications and standards of the organization

Elements and Performance Criteria

Receive, wash, sort and slice fruits

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

PC1. receive fruits from the supplier/vendor, check weight and quality through physical parameters such as appearance, colour, texture, maturity, etc

PC2. open valves or start pump to fill water into the washing tank and control water level, dump fruits manually or start elevator conveyor to transfer fruits into washing tank for washing or wash and rinse manually

PC3. switch on agitator of revolving screens/blades to immerse each fruit into water to remove dirt, soil and other impurities

PC4. start ladder conveyor and control speed to lift fruits from the washing tank and transfer to washing line conveyor

PC5. open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on fruits for rinsing

PC6. start and adjust speed of sorting/inspecting line conveyor to transfer fruits to inspection station, inspect visually and remove damaged, blemished and rotten fruit; dispose waste following SOP

PC7. cut fruits manually or load the fruits in the chopper/cutter/slicer/grating or grinding machine, adjust controls to cut/grate fruits to required size, start machine and then collect sliced/grated fruits from the discharge chute

Extract fruit juice

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

PC8. start the conveyor and control speed to transfer fruits to juice extractors (in case of citrus fruits), crusher and fruit mills (for fruits such as apples, pear, etc.), or stem and seed remover (grapes and berries)

PC9. set controls such as speed/rotation of stem and seed remover machine, start machine and feed fruits such as grapes and berries though conveyor to remove stem and seed; dispose waste following SOP

PC10. set controls such as speed/rotation, feed rate, etc. of citrus fruit extractor or rotary press machine to extract juice from citrus juice (citrus fruit extractor), start machine and open valves to allow citrus fruits to pass though machine to extract juice; simultaneously remove peel and seeds, collect juice flowing though the discharge outlet in collection tank; dispose waste following SOP

PC11. set controls such as speed/rotation of fruit mills (fruit grinding mill/grater mill/ hammer mill) depending on the type of fruit, start machine and open valves to allow fruits such as apple, pear, etc. to pass through machine for grinding fruit into fine gratings

PC12. measure enzymes required for batch following formulation chart, pump cut/ grated fruit into reservoir tank and add measured quantity of enzymes (for selected fruits like apple), set timer for fruit-enzyme contact time following SOP and allow to stand for specified time for enzyme activity

PC13. adjust controls such as speed/rotation of pressing machines (hydraulic press/ cloth press/ continuous belt press / screw press, etc.), start machine and open valves to allow (enzyme treated) fruits such as apple, pear, etc. to pass through machine for extraction of juice and removal of peel, stem and seeds, collect juice in collection tank; dispose waste following SOP

PC14. open valve of start pump to transfer fruit juice to filter for removing small suspended particles (in case of apple, pear, etc.), collect filtered juice in collection tank

PC15. change sieves or clean sieves of juice extraction machines to avoid clogging; change or sharpen blades of fruit mills for better grinding

PC16. check the quality of extracted juice through physical parameters such as appearance, colour, consistency, flavour, taste, etc., sample and transfer to quality lab for analysis

Pasteurize Juice

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

PC17. set controls such as temperature, steam pressure, etc. of vacuum concentrate machine; start pump to allow fruit juice to pass thorough machine to concentrate fruit juice and recover aroma (aroma stripping

PC18. set process parameters such as pressure, temperature, flow rate, time, etc. of pasteurizer

PC19. open valves to allow steam to pass through pasteurizer, observe temperature and pressure gauge and adjust controls to achieve required pressure and temperature

PC20. open valves to allow juice to pass to the pasteurizer, monitor and maintain process parameters throughout the pasteurization process (pasteurize cloudy juice immediately after pressing)

PC21. open valves or start pump to circulate water through heat exchangers to cool pasteurized juice, open valves to allow pasteurised juice to pass through heat exchangers to cool to required temperature, collect in collection tank

Clarify Juice

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

PC22. measure enzymes required for clarification of juice following formulation chart, add to the pasteurized juice in the collection tank (for obtaining clear juice), start stirrer and control speed for uniform mixing of enzymes

PC23. open valves or start pump to allow enzyme treated juice to pass through ultra filtration unit to remove smallest particles and obtain clear juice

PC24. check quality of juice through physical parameters such as colour, appearance, flavour, taste, etc., sample and transfer to lab for quality analysis and to ensure conformance to standards

PC25. pump processed juice to the holding /reservoir tanks and store maintaining storage parameters until packaging or further processing (to prepare squash)

Prepare Squash

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

PC26. open valve to admit measured quantity of water into steam jacketed kettle/tank, observe gauge or designated mark for filled quantity

PC27. measure sugar (add acids if specified in the formulation) and add it to water in the kettle/tank to prepare sugar syrup, turn on mixer/agitator and control speed to mix ingredients

PC28. turn valves to admit steam into kettle/tank, set required pressure, temperature and time to heat the solution following sop, observe pressure and temperature gauge, adjust valves to maintain set parameters

PC29. check sugar syrup using refractometer instrument to conform its specifications to standards, open valves or start pump to allow sugar syrup to pass through filter to remove undesirable particles and sediments, collect filtered sugar syrup in storage or holding tanks

PC30. start pump to transfer measured quantity of (single or multiple fruit) juice concentrate or clarified juice (depending on type of product produced) , water, sugar syrup into blending tank; check pumped quantity through the level indicator and glass windows of the tank, add measured quantity of acids, preservatives, colour, flavor, etc. following sop, set controls of stirrer/agitator (mixing speed, mixing time, etc.) and start mixer, observe mixing process, collect sample and check physical parameters to ensure uniform mixing

PC31. adjust controls to set temperature, pressure, etc. of pasteurizer/heat exchanger; turn valves to admit steam, start pump to transfer blended product into pasteurizer/heat exchanger, check dials and adjust gauges to control process parameters, open valves to allow water to pass thorough heat exchanger to cool product, open valves to collect finished product in storage tank, to hold until packaging

PC32. check the quality of finished product through physical parameters (appearance, colour, consistency, flavour, taste etc.), sample and transfer to quality lab for analysis and to ensure conformance to quality standards

Fill, pack and store juice and squash

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

PC33. start pump to transfer finished product into the filling tank of packaging machine

PC34. load packing materials (tetra packs, glass bottles, plastic containers, etc.) in packaging machine, sealing materials (caps, lids, crowns, etc.) in sealing machine, labels in labelling machine; set machine for filling volume, set date coding machine for date code details (batch number, date of manufacture, date of expiry, etc.)

PC35. start automatic packaging machine to form packaging materials, wash bottle/plastic containers, fill measured quantity of finished products, close/seal and label, check the weight of packed product periodically to ensure its conformance to standards

PC36. set controls of straw attaching machine and start machine to attach straw in the packaging material (like tetra pack) of packed product

PC37. place packed and labelled products in cartons and transfer to storage area and store maintaining storage conditions following SOP

PC38. report discrepancies/concerns to department supervisor for immediate action

Carry out post production cleaning and regular maintenance of equipment

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

PC39. clean the work area, machineries, equipment and tools using approved cleaning agents and sanitizers

PC40. attend minor repairs/faults of all machines (if any)

PC41. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- **KU1.** organization standards, process standards and procedures followed in the organisation
- **KU2.** types of products produced by the organisation
- **KU3.** code of business conduct
- **KU4.** dress code to be followed
- **KU5.** job responsibilities/duties and standard operating procedures
- **KU6.** internal processes such as procurement, store management, inventory management, quality management and key contact points for query resolution
- **KU7.** provision of wages, working hours as per organisation policy
- **KU8.** food safety and hygiene standards followed
- **KU9.** types and varieties of raw materials (fruits) and products produced from eachraw material
- **KU10.** production process, process parameters and product formulation for production of various products produced
- **KU11.** types of machineries used in processing and machineries used in the organisation
- **KU12.** handling all processing machineries
- **KU13.** maintenance of machineries, equipments and too
- **KU14.** basic mathematics
- **KU15.** aseptic packaging process and parameters, handling aseptic packaging machineries
- **KU16.** procedure for disposal of waste from agricultural produce
- **KU17.** quality parameters, basic food microbiology and quality assessment based on physical parameters
- **KU18.** types and category of packaging materials, packaging machineries
- **KU19.** storage procedures for raw materials, packaging materials and finished goods
- **KU20.** cleaning procedures such as CIP and COP
- **KU21.** knowledge of sanitizers and disinfectants and its handling and storing methods
- **KU22.** food laws and regulations on product, packaging and labelling
- **KU23.** food safety and hygiene
- **KU24.** GMP
- **KU25.** HACCP

Generic Skills (GS)

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

- **GS1.** note the information communicated by the supervisor
- **GS2.** note the raw materials used for production and the finished products produced
- **GS3.** note the readings of the process parameters and provide necessary information to fill the process chart
- **GS4.** note down observations (if any) related to the process

GS5. write information documents to internal departments/ internal teams
GS6. note down the data for online erp or as per applicability in the organization
GS7. read and interpret the process required for producing various types of products
GS8. read and interpret and process flowchart for all products produced
GS9. read equipment manuals and process documents to understand the equipments operation and process requirement
GS10. read internal information documents sent by internal teams
GS11. discuss task lists, schedules and activities with the supervisor
GS12. effectively communicate with the team members
GS13. question the supervisor in order to understand the nature of the problem and to clarify queries
GS14. attentively listen and comprehend the information given by the speaker
GS15. communicate clearly with the supervisor and cross department teams on the issues faced during process
GS16. analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue
GS17. handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)
GS18. plan and organize the work order and jobs received from the supervisor
GS19. organize raw materials and packaging materials required for all products following the instruction provided by the supervisor
GS20. plan and prioritize the work based on the instructions received from the supervisor
GS21. plan to utilise time and equipment's effectively
GS22. organize all process/ equipment manuals so as to access information easily
GS23. support the supervisor in scheduling tasks for helper(s)
GS24. understand customer requirements and their priority and respond as per their needs
GS25. support supervisor in solving problems by detailing out problems
GS26. discuss the possible solutions with the supervisor for problem solving
GS27. apply domain information about maintenance processes and technical knowledge about tools and equipment
GS28. use common sense and make judgments on day to day basis
GS29. use reasoning skills to identify and resolve basic problems
GS30. use intuition to detect any potential problems which could arise during operations
GS31. use acquired knowledge of the process for identifying and handling issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Receive, wash, sort and slice fruits	19	33	-	-
PC1. receive fruits from the supplier/vendor, check weight and quality through physical parameters such as appearance, colour, texture, maturity, etc	4	6	-	-
PC2. open valves or start pump to fill water into the washing tank and control water level, dump fruits manually or start elevator conveyor to transfer fruits into washing tank for washing or wash and rinse manually	2	3	-	-
PC3. switch on agitator of revolving screens/blades to immerse each fruit into water to remove dirt, soil and other impurities	5	10	-	-
PC4. start ladder conveyor and control speed to lift fruits from the washing tank and transfer to washing line conveyor	2	3	-	-
PC5. open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on fruits for rinsing	2	3	-	-
PC6. start and adjust speed of sorting/inspecting line conveyor to transfer fruits to inspection station, inspect visually and remove damaged, blemished and rotten fruit; dispose waste following SOP	2	3	-	-
PC7. cut fruits manually or load the fruits in the chopper/cutter/slicer/grating or grinding machine, adjust controls to cut/grate fruits to required size, start machine and then collect sliced/grated fruits from the discharge chute	2	5	-	-
Extract fruit juice	14.5	26.5	-	-
PC8. start the conveyor and control speed to transfer fruits to juice extractors (in case of citrus fruits), crusher and fruit mills (for fruits such as apples, pear, etc.), or stem and seed remover (grapes and berries)	2	5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC9. set controls such as speed/rotation of stem and seed remover machine, start machine and feed fruits such as grapes and berries though conveyor to remove stem and seed; dispose waste following SOP	1	2	-	-
PC10. set controls such as speed/rotation, feed rate, etc. of citrus fruit extractor or rotary press machine to extract juice from citrus juice (citrus fruit extractor), start machine and open valves to allow citrus fruits to pass though machine to extract juice; simultaneously remove peel and seeds, collect juice flowing though the discharge outlet in collection tank; dispose waste following SOP	1	2	-	-
PC11. set controls such as speed/rotation of fruit mills (fruit grinding mill/grater mill/ hammer mill) depending on the type of fruit, start machine and open valves to allow fruits such as apple, pear, etc. to pass through machine for grinding fruit into fine gratings	2	3	-	-
PC12. measure enzymes required for batch following formulation chart, pump cut/ grated fruit into reservoir tank and add measured quantity of enzymes (for selected fruits like apple), set timer for fruit-enzyme contact time following SOP and allow to stand for specified time for enzyme activity	1	2	-	-
PC13. adjust controls such as speed/rotation of pressing machines (hydraulic press/ cloth press/ continuous belt press / screw press, etc.), start machine and open valves to allow (enzyme treated) fruits such as apple, pear, etc. to pass through machine for extraction of juice and removal of peel, stem and seeds, collect juice in collection tank; dispose waste following SOP	1	2	-	-
PC14. open valve of start pump to transfer fruit juice to filter for removing small suspended particles (in case of apple, pear, etc.), collect filtered juice in collection tank	4	6	-	-
PC15. change sieves or clean sieves of juice extraction machines to avoid clogging; change or sharpen blades of fruit mills for better grinding	0.5	1.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC16. check the quality of extracted juice through physical parameters such as appearance, colour, consistency, flavour, taste, etc., sample and transfer to quality lab for analysis	2	3	-	-
Pasteurize Juice	1.5	5.5	-	-
PC17. set controls such as temperature, steam pressure, etc. of vacuum concentrate machine; start pump to allow fruit juice to pass thorough machine to concentrate fruit juice and recover aroma (aroma stripping	1	4	-	-
PC18. set process parameters such as pressure, temperature, flow rate, time, etc. of pasteurizer	0.5	1.5	-	-
PC19. open valves to allow steam to pass through pasteurizer, observe temperature and pressure gauge and adjust controls to achieve required pressure and temperature	-	-	-	-
PC20. open valves to allow juice to pass to the pasteurizer, monitor and maintain process parameters throughout the pasteurization process (pasteurize cloudy juice immediately after pressing)	-	-	-	-
PC21. open valves or start pump to circulate water through heat exchangers to cool pasteurized juice, open valves to allow pasteurised juice to pass through heat exchangers to cool to required temperature, collect in collection tank	-	-	-	-
Clarify Juice	-	-	-	-
PC22. measure enzymes required for clarification of juice following formulation chart, add to the pasteurized juice in the collection tank (for obtaining clear juice), start stirrer and control speed for uniform mixing of enzymes	-	-	-	-
PC23. open valves or start pump to allow enzyme treated juice to pass through ultra filtration unit to remove smallest particles and obtain clear juice	-	-	-	-
PC24. check quality of juice through physical parameters such as colour, appearance, flavour, taste, etc., sample and transfer to lab for quality analysis and to ensure conformance to standards	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC25. pump processed juice to the holding /reservoir tanks and store maintaining storage parameters until packaging or further processing (to prepare squash)	-	-	-	-
Prepare Squash	-	-	-	-
PC26. open valve to admit measured quantity of water into steam jacketed kettle/tank, observe gauge or designated mark for filled quantity	-	-	-	-
PC27. measure sugar (add acids if specified in the formulation) and add it to water in the kettle/tank to prepare sugar syrup, turn on mixer/agitator and control speed to mix ingredients	-	-	-	-
PC28. turn valves to admit steam into kettle/tank, set required pressure, temperature and time to heat the solution following sop, observe pressure and temperature gauge, adjust valves to maintain set parameters	-	-	-	-
PC29. check sugar syrup using refractometer instrument to conform its specifications to standards, open valves or start pump to allow sugar syrup to pass through filter to remove undesirable particles and sediments, collect filtered sugar syrup in storage or holding tanks	-	-	-	-
PC30. start pump to transfer measured quantity of (single or multiple fruit) juice concentrate or clarified juice (depending on type of product produced) , water, sugar syrup into blending tank; check pumped quantity through the level indicator and glass windows of the tank, add measured quantity of acids, preservatives, colour, flavor, etc. following sop, set controls of stirrer/agitator (mixing speed, mixing time, etc.) and start mixer, observe mixing process, collect sample and check physical parameters to ensure uniform mixing	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC31. adjust controls to set temperature, pressure, etc. of pasteurizer/heat exchanger; turn valves to admit steam, start pump to transfer blended product into pasteurizer/heat exchanger, check dials and adjust gauges to control process parameters, open valves to allow water to pass thorough heat exchanger to cool product, open valves to collect finished product in storage tank, to hold until packaging	-	-	-	-
PC32. check the quality of finished product through physical parameters (appearance, colour, consistency, flavour, taste etc.), sample and transfer to quality lab for analysis and to ensure conformance to quality standards	-	-	-	-
Fill, pack and store juice and squash	-	-	-	-
PC33. start pump to transfer finished product into the filling tank of packaging machine	-	-	-	-
PC34. load packing materials (tetra packs, glass bottles, plastic containers, etc.) in packaging machine, sealing materials (caps, lids, crowns, etc.) in sealing machine, labels in labelling machine; set machine for filling volume, set date coding machine for date code details (batch number, date of manufacture, date of expiry, etc.)	-	-	-	-
PC35. start automatic packaging machine to form packaging materials, wash bottle/plastic containers, fill measured quantity of finished products, close/seal and label, check the weight of packed product periodically to ensure its conformance to standards	-	-	-	-
PC36. set controls of straw attaching machine and start machine to attach straw in the packaging material (like tetra pack) of packed product	-	-	-	-
PC37. place packed and labelled products in cartons and transfer to storage area and store maintaining storage conditions following SOP	-	-	-	-
PC38. report discrepancies/concerns to department supervisor for immediate action	-	-	-	-
Carry out post production cleaning and regular maintenance of equipment	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC39. clean the work area, machineries, equipment and tools using approved cleaning agents and sanitizers	-	-	-	-
PC40. attend minor repairs/faults of all machines (if any)	-	-	-	-
PC41. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals	-	-	-	-
NOS Total	**35**	**65**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N0103
NOS Name	Produce Squash and Juice
Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Bread and Bakery, Packaged Goods
Occupation	GENERIC
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	23/06/2023
Next Review Date	23/06/2026
NSQC Clearance Date	23/06/2023

FIC/N0107: Pickle making

Description

This unit is about preparing different types of pickles from fruits and vegetables using various machineries as per the specifications and standards of the organization

Elements and Performance Criteria

Receive, wash and sort vegetables

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

PC1. receive vegetables from the supplier/vendor, check weight and check quality through physical parameters such as appearance, colour, texture, maturity, etc

PC2. pump water into the washing tank and control water level, dump vegetables into the washing tank for washing or wash and rinse the vegetables manually

PC3. start the ladder conveyor to lift the vegetables from the washing tank and to transfer to the conveyor

PC4. open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on vegetables for rinsing

PC5. control speed of drying line conveyor, control air temperature and fan speed/air flow and start conveyor to dry vegetables or start roller conveyor with rolling brushes for wiping and transfer vegetables to sorting line

PC6. start and adjust speed of sorting/inspecting line conveyor to remove damaged, blemished and rotten vegetables

Peel and slice vegetables

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

PC7. dump the sorted vegetables in the peeling machine (depending on the type of vegetable), start the peeler machine and adjust the speed to remove the peel, pump water or open valve/spraying system to wash the peeled vegetables

PC8. prepare lye solution by adding measured quantity of lye chemical and water into lye tank, turn valves to admit steam to heat lye solution, start conveyor and adjust speed to carry manually/mechanically into the lye tank, and pull out the basket after specified time following sop (lye peeling)

PC9. observe vegetable emerging from lye peeling machine /lye tank to ensure removal of peel andopen valves to drain the excess lye solution

PC10. load the vegetables in the cutter/slicer machine, adjust controls to cut vegetables to required size, start machine, collect sliced vegetables from the discharge chute

PC11. start inspection line conveyor and control speed, transfer cut/sliced vegetable on the conveyor belt, visually inspect sliced vegetables for conformance to organisation standards and remove non-conforming materials from the line

Prepare brine solution and cure vegetables

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

PC12. open valve to admit measured quantity of water into steam jacketed kettle/tank, observe water gauge or designated mark for filled quantity, weigh required quantity of salt as per formulation and add into tank to prepare brine solution

PC13. start and control speed of the agitator of the steam jacketed kettle/tank, turn valves to set required pressure and open valve to admit steam to heat the solution following sop

PC14. observe pressure and temperature gauge, and regulate steam to maintain temperature, check brine solution using salinometer equipment to ensure conformance of its specifications to standards

PC15. open valve or start pump to transfer brine solution from mixing tank to storage or holding tanks for later use

PC16. start pump to transfer measured quantity of brine solution from storage tank/kettle to the curing drums/barrels, add measured quantity of cut/whole vegetables, close with lid and allow to stand for specified time (few weeks) for curing/natural fermentation following sop

PC17. mix the vegetables periodically either mechanically/manually for salt equilibrium, sample and check for acidity to ensure completion of fermentation

PC18. store cured vegetable following sop until further process

Prepare and pack pickle

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

PC19. refer to the work order and formulation for the product/batch

PC20. organize required raw material (cured vegetable), ingredients, spices, packaging material, etc. from store and check its conformance to standards, through physical parameters

PC21. remove cured vegetables from drums/barrels/tank and transfer into the washing tank, pump water into tank to wash vegetables to remove excess salt, open valve to drain water or dump on the washing line and start the conveyor, open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on vegetables to remove excess salt

PC22. transfer washed vegetables to the pickle mixing machine, prepare spice mix as per formulation, add measured quantity of spice mixture and oil into the vegetables, adjust controls to set mixing speed and start machine to mix all the ingredients, check the quality of pickle, and open valve to transfer pickle into container (for pickle in oil)

PC23. start conveyor and control speed to load cured and washed vegetable into the hopper of the filling machine (for prickle in brine)

PC24. set pickle and oil filling machine (for pickle in oil) and vegetable and brine filling machine (for pickle in brine) for filling quantity and volume, start packaging line conveyor and control speed to ensure containers are positioned under the filling nozzles of pickle/vegetable and oil/brine

PC25. load lids and labels in automatic packaging machine, set date code (batchnumber, date of manufacture, date of expiry, etc.) start machine, controlspeed of conveyor and observe filling of pickle and oil, vegetable and brine,ensure proper sealing and labeling of containers

PC26. check weight of the filled containers periodically for quantity of vegetable filled and volume of liquid filled to ensure its conformance to standards

PC27. observe filled container leaving machines to detect defects, check the weight of the finished product, sample and transfer to quality lab for analysis

PC28. pack the finished product into cartons and transfer to storage area manually or mechanically and store following organisation standards

PC29. report discrepancies/concerns to department supervisor for immediate action

Carry out post production cleaning and regular maintenance of equipments

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

PC30. clean work area, machineries, equipment and tools using approved cleaning agents and sanitizers

PC31. attend minor repairs/faults of all machines (if any)

PC32. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the SOP or following suppliers instructions/manuals

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organization standards, process standards and procedures followed in the organization

KU2. types of products produced by the organization

KU3. code of business conduct

KU4. dress code to be followed

KU5. job responsibilities/duties and standard operating procedures

KU6. internal processes like procurement, store management, inventory management, quality management and key contact points for query resolution

KU7. provision of wages, working hours as per organization policy

KU8. food safety and hygiene standards followed

KU9. types of raw materials (various vegetables) and products prepared from each raw materials

KU10. production process, process parameters and product formulation for various products produced

KU11. types of machineries used in processing and machineries used in the organization

KU12. handling all machineries

KU13. maintenance of machineries, equipments and tools

KU14. procedures to handle rejects

KU15. quality parameters, basic food microbiology and quality assessment based on physical parameters

KU16. types and category of packaging materials, packaging machineries

KU17. storage procedures for raw materials, packaging materials and finished goods

KU18. cleaning procedures such as CIP and COP

KU19. knowledge of sanitizers and disinfectants and its handling and storing methods

KU20. food laws and regulations on product, packaging and labelling

KU21. food safety and hygiene

KU22. GMP

KU23. HACCP

Generic Skills (GS)

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

GS1. note the information communicated by the supervisor

GS2. note the raw materials used for production and the finished products produced

GS3. note the readings of the process parameters and provide necessary information to fill the process chart

GS4. note down observations (if any) related to the process

GS5. write information documents to internal departments/ internal teams

GS6. note down the data for online ERP or as per applicability in the organization

GS7. read and interpret the process required for producing various types of products

GS8. read and interpret and process flowchart for all products produced

GS9. read equipment manuals and process documents to understand the equipments operation and process requirement

GS10. read internal information documents sent by internal teams

GS11. discuss task lists, schedules and activities with the supervisor

GS12. effectively communicate with the team members

GS13. question the supervisor in order to understand the nature of the problem and to clarify queries

GS14. attentively listen and comprehend the information given by the speaker

GS15. communicate clearly with the supervisor and cross department teams on the issues faced during process

GS16. analyze critical points in day to day tasks through experience and observation and identify control measures to solve the issue

GS17. handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)

GS18. plan and organize the work order and jobs received from the supervisor

GS19. organize raw materials and packaging materials required for all products following the instruction provided by the supervisor

GS20. plan and prioritize the work based on the instructions received from the supervisor

GS21. plan to utilize time and equipment's effectively

GS22. organize all process/ equipment manuals so as to access information easily

GS23. support the supervisor in scheduling tasks for helper(s)

GS24. understand customer requirements and their priority and respond as per their needs

GS25. supervisor in solving problems by detailing out problems

GS26. the possible solutions with the supervisor for problem solving

GS27. apply domain information about maintenance processes and technical knowledge about tools and equipment

GS28. use common sense and make judgments on day to day basis

GS29. use reasoning skills to identify and resolve basic problems

GS30. use intuition to detect any potential problems which could arise during operations

GS31. use acquired knowledge of the process for identifying and handling issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Receive, wash and sort vegetables	6	9	-	-
PC1. receive vegetables from the supplier/vendor, check weight and check quality through physical parameters such as appearance, colour, texture, maturity, etc	1.5	1.5	-	-
PC2. pump water into the washing tank and control water level, dump vegetables into the washing tank for washing or wash and rinse the vegetables manually	0.5	1.5	-	-
PC3. start the ladder conveyor to lift the vegetables from the washing tank and to transfer to the conveyor	0.5	1.5	-	-
PC4. open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on vegetables for rinsing	0.5	1.5	-	-
PC5. control speed of drying line conveyor, control air temperature and fan speed/air flow and start conveyor to dry vegetables or start roller conveyor with rolling brushes for wiping and transfer vegetables to sorting line	1.5	1.5	-	-
PC6. start and adjust speed of sorting/inspecting line conveyor to remove damaged, blemished and rotten vegetables	1.5	1.5	-	-
Peel and slice vegetables	5	10	-	-
PC7. dump the sorted vegetables in the peeling machine (depending on the type of vegetable), start the peeler machine and adjust the speed to remove the peel, pump water or open valve/spraying system to wash the peeled vegetables	1.5	1.5	-	-
PC8. prepare lye solution by adding measured quantity of lye chemical and water into lye tank, turn valves to admit steam to heat lye solution, start conveyor and adjust speed to carry manually/mechanically into the lye tank, and pull out the basket after specified time following sop (lye peeling)	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC9. observe vegetable emerging from lye peeling machine /lye tank to ensure removal of peel andopen valves to drain the excess lye solution	0.5	1.5	-	-
PC10. load the vegetables in the cutter/slicer machine, adjust controls to cut vegetables to required size, start machine, collect sliced vegetables from the discharge chute	1	3	-	-
PC11. start inspection line conveyor and control speed, transfer cut/sliced vegetable on the conveyor belt, visually inspect sliced vegetables for conformance to organisation standards and remove non-conforming materials from the line	1	2	-	-
Prepare brine solution and cure vegetables	6	14	-	-
PC12. open valve to admit measured quantity of water into steam jacketed kettle/tank, observe water gauge or designated mark for filled quantity, weigh required quantity of salt as per formulation and add into tank to prepare brine solution	0.5	1.5	-	-
PC13. start and control speed of the agitator of the steam jacketed kettle/tank, turn valves to set required pressure and open valve to admit steam to heat the solution following sop	1	3	-	-
PC14. observe pressure and temperature gauge, and regulate steam to maintain temperature, check brine solution using salinometer equipment to ensure conformance of its specifications to standards	1	3	-	-
PC15. open valve or start pump to transfer brine solution from mixing tank to storage or holding tanks for later use	0.5	0.5	-	-
PC16. start pump to transfer measured quantity of brine solution from storage tank/kettle to the curing drums/barrels, add measured quantity of cut/whole vegetables, close with lid and allow to stand for specified time (few weeks) for curing/natural fermentation following sop	1	3	-	-
PC17. mix the vegetables periodically either mechanically/manually for salt equilibrium, sample and check for acidity to ensure completion of fermentation	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC18. store cured vegetable following sop until further process	1	1	-	-
Prepare and pack pickle	15	25	-	-
PC19. refer to the work order and formulation for the product/batch	1	1	-	-
PC20. organize required raw material (cured vegetable), ingredients, spices, packaging material, etc. from store and check its conformance to standards, through physical parameters	1	2	-	-
PC21. remove cured vegetables from drums/barrels/tank and transfer into the washing tank, pump water into tank to wash vegetables to remove excess salt, open valve to drain water or dump on the washing line and start the conveyor, open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on vegetables to remove excess salt	2	4	-	-
PC22. transfer washed vegetables to the pickle mixing machine, prepare spice mix as per formulation, add measured quantity of spice mixture and oil into the vegetables, adjust controls to set mixing speed and start machine to mix all the ingredients, check the quality of pickle, and open valve to transfer pickle into container (for pickle in oil)	2	4	-	-
PC23. start conveyor and control speed to load cured and washed vegetable into the hopper of the filling machine (for prickle in brine)	1.5	1.5	-	-
PC24. set pickle and oil filling machine (for pickle in oil) and vegetable and brine filling machine (for pickle in brine) for filling quantity and volume, start packaging line conveyor and control speed to ensure containers are positioned under the filling nozzles of pickle/vegetable and oil/brine	2	4	-	-
PC25. load lids and labels in automatic packaging machine, set date code (batchnumber, date of manufacture, date of expiry, etc.) start machine, controlspeed of conveyor and observe filling of pickle and oil, vegetable and brine,ensure proper sealing and labeling of containers	2	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. check weight of the filled containers periodically for quantity of vegetable filled and volume of liquid filled to ensure its conformance to standards	1	2	-	-
PC27. observe filled container leaving machines to detect defects, check the weight of the finished product, sample and transfer to quality lab for analysis	1	2	-	-
PC28. pack the finished product into cartons and transfer to storage area manually or mechanically and store following organisation standards	0.5	1.5	-	-
PC29. report discrepancies/concerns to department supervisor for immediate action	1	1	-	-
Carry out post production cleaning and regular maintenance of equipments	3	7	-	-
PC30. clean work area, machineries, equipment and tools using approved cleaning agents and sanitizers	1	3	-	-
PC31. attend minor repairs/faults of all machines (if any)	1	3	-	-
PC32. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the SOP or following suppliers instructions/manuals	1	1	-	-
NOS Total	**35**	**65**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N0107
NOS Name	Pickle making
Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Bread and Bakery, Packaged Goods
Occupation	GENERIC
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	29/07/2024
NSQC Clearance Date	29/07/2021

FIC/N0111: Produce jam, jelly and ketchup

Description

This unit is about production of jam, jelly and ketchup using various machineries as per the specifications and standards of the organization

Elements and Performance Criteria

Receive, wash and sort fruits and vegetables

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

PC1. receive fruits and vegetables (tomato) from the supplier/vendor, check its weight and check the quality of fruits and veegtables through physical parameters such as appearance, colour, texture, maturity, etc.

PC2. open valves or start pump to fill water in the washing tank and control water level, dump fruits and vegetables in the washing tank for washing

PC3. switch on agitator of revolving screens/blades to immerse fruits and vegetables in water to remove dirt, soil and other impurities

PC4. start the ladder conveyor to lift fruits and vegetables from the washing tank and transfer to the washing line conveyor

PC5. open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on fruits and vegetables on washing line conveyor for rinsing

PC6. adjust controls to transfer washed fruit and vegetables to sorting/inspecting line, start and adjust speed of sorting/inspecting line conveyor to visually inspect and manually remove damaged, blemished and rotten fruits and vegetables

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

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

PC7. dump sorted fruits and vegetables in the peeler or corer (depending on the type of fruits), start machine , adjust speed to remove the peel or core of fruits or turn valves to introduce steam and adjust controls to maintain pressure for steam peeling fruits

PC8. open valve or pump water or open spraying system to wash the peeled fruits and vegetables, observe fruits and vegetables emerging from peeling /coring machine to ensure removal of peel/core

PC9. cut fruits and vegetables manually or load the fruits and vegetables in the chopper/cutter/slicer machine, adjust controls to cut fruits to required size, start machine, collect sliced fruits and vegetables from the discharge chute

PC10. in case of mangoes, start conveyor and control speed to allow washed mangoes to pass through tip cutting line, cut the tip of the fruit manually, control conveyor speed to dump the tip cut mangoes into de-stoner machine to remove seed and peel

PC11. control speed of waste disposal conveyor to dispose waste following SOP

Pulp fruits and vegetables, extract fruit juice

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

PC12. adjust and maintain speed of pulper conveyor to allow the fruits and vegetables to pass through the pulper cum finisher/ pulper refiner machine for pulping of fruits and vegetables and sieving pulp to required fineness, adjust position of discharge outlet to collect refined pulp in collection tank, check collected pulp to ensure it is free from seeds and fiber

PC13. replace damaged or clogged filter screen of pulper cum finisher/ pulper refiner machine

PC14. adjust controls of hydraulic press machine to extract juice, start machine and control speed/rotation, start conveyor to allow cut/grated fruit to pass through hydraulic press/juice extraction machine to extract juice, remove skin, seeds and fiber through filter sieves

PC15. change sieves or clean sieves of hydraulic press/juice extraction machine to avoid clogging

PC16. open valves or start pump to allow extracted juice through finer sieves to remove very small and undesirable particles and collect filtered juice in collection tanks

PC17. check the quality of fruit pulp/ fruit juice through physical parameters such as appearance, colour, odour, etc. sample and transfer to quality lab for analysis

Prepare jam and jelly

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

PC18. pump measured quantity of fruit pulp for preparing jam and fruit juice for preparing jelly (pulp of various fruit as per formulation for preparing mixed fruit jam) from holding tank/ container into cooking kettle/tank

PC19. set temperature, pressure, stirrer speed, etc. of the cooking kettle/tank, set mixing time, cooking time, cooking temperature, etc, open valves to admit steam through the kettle or light burner to heat fruit pulp / fruit juice to require temperature and thickness with continuous stirring to avoid sticking/scorching or stir manually

PC20. monitor pressure and temperature gauge and adjust controls to achieve specified pressure and temperature to cook fruit pulp / fruit juice

PC21. open valve or start pump to transfer measured quantity of water into pre-mixing tank, set speed of stirrer of pre-mixing tank to stir water, measure specified quantity of pectin following formulation and add to water in the pre-mixing tank, control speed of mixer for uniform mixing of pectin in water to prepare pectin solution

PC22. measure ingredients such as sugar, pectin solution, flavour, colour etc for batch referring to the formulation chart and add in sequence into pulp/juice in kettle following sop and continue cooking along with stirring

PC23. observe the cooking process and check the product in refractometer to ensure completeness of cooking process

PC24. check the quality of cooked product through physical parameters such as colour, appearance, texture, taste, etc., sample and transfer to quality lab for analysis and conformance to standards

PC25. start pump or open valve to transfer product into filling tank of the packaging machine or tilt kettle and scoop contents out of kettle into container, manually transfer into hopper of the filling machine for packaging or manually fill hot product in packaging containers

Prepare ketchup

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

PC26. pump measured quantity of tomato pulp/puree from holding tank/ container into cooking kettle

PC27. set temperature, pressure, stirrer speed, etc. of the cooking kettle, set mixing time, cooking time, cooking temperature etc, open valves to admit steam through the kettle or light burner to heat tomato paste to required temperature and thickness with continuous stirring to avoid sticking /scorching or stir manually

PC28. monitor pressure and temperature gauge and adjust controls to achieve specified temperature to cook tomato paste

PC29. measure ingredients such as sugar, salt, spice powder, vinegar, etc. required for batch, by referring to the formulation chart and add as per sequence into the tomato pulp/puree in kettle following sop and continue cooking

PC30. observe cooking process and check the quality of cooked product through feel, consistency, test the viscosity using viscometer to ensure completeness of the cooking process

PC31. check the quality of cooked product through physical parameters such as colour, appearance, texture, taste, etc., sample and transfer to quality lab for analysis and conformance to standards

PC32. start pump or open valve to transfer product into filling tank of the packaging machine or tilt kettle or scoop contents out of kettle into container, manually transfer into hopper of the filling machine for packaging or manually filling hot product in packaging containers

Fill and pack jam, jelly and ketchup

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

PC33. open valves or start pump to transfer hot product into the packaging machine to pack jam/jelly

PC34. load packing materials such as glass bottle, plastic bottle, pouches, etc. and sealing materials such as lid, closures, etc. in packaging machines

PC35. set packaging machine for filling volume, speed, etc,, start automatic packaging machine for forming, washing bottles, filling, sealing container (or) fill measured quantity of hot product in packaging containers , place lid and close manually/ mechanically

PC36. start machine to fill hot product in the container, check weight of packed product periodically to ensure its conformance to standards

PC37. start cooling line conveyor and control speed to allow packed contianers to pass through the cooling tunnel, set controls of water temperature, pressure etc. and start machine to spray water on containers to cool and set product (setting in case of jam and jelly) or arrange filled jam/jelly containers in rack and allow to stand for specified time following SOP to cool and set product

PC38. start drying line conveyor and control speed to allow the cooled bottles to pass through the drying tunnel, set controls of air temperature, air flow rate etc. and start machine to dry bottle before labelling

PC39. load labels in labelling machine, set date coding machine for batch number, date of manufacture, date of expiry, etc., start labelling line conveyor and control speed to allow packed container to pass through labelling and date coding machine for labelling and date coding packed products

PC40. place the packed and labelled products in cartons and transfer to storage area and store maintaining storage conditions following SOP

PC41. report discrepancies/concerns to department supervisor for immediate action

Carry out post production cleaning and regular maintenance of equipments

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

PC42. clean the work area, machineries, equipment and tools using approved cleaning agents and sanitizers

PC43. attend minor repairs/faults of all machines (if any)

PC44. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the SOP or following suppliers instructions/manuals

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organization standards, process standards and procedures followed in the organisation

KU2. types of products produced by the organisation

KU3. code of business conduct

KU4. dress code to be followed

KU5. job responsibilities/duties and standard operating procedures

KU6. internal processes such as procurement, store management, inventory management, quality management and key contact points for query resolution

KU7. provision of wages, working hours as per organisation policy

KU8. food safety and hygiene standards followed

KU9. types and varities of raw materials (fruits and vegetable) and products produced from each raw material

KU10. production process, process parameters and product formulation for production of various products

KU11. types of machineries used in processing and machineries used in the organisation

KU12. handling all process machineries

KU13. maintenance of machineries, equipments and tools

KU14. basic mathematics

KU15. procedures for disposal of waste from agricultural produce

KU16. quality parameters, basic food microbiology and quality assessment based on physical parameters

KU17. types and category of packaging materials, packaging machineries

KU18. storage procedures for raw materials, packaging materials and finished goods

KU19. cleaning procedures like CIP and COP

KU20. knowledge of sanitizers and disinfectants and their handling and storing methods

KU21. food laws and regulations on product, packaging and labelling

KU22. food safety and hygiene

KU23. GMP

KU24. HACCP

Generic Skills (GS)

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

GS1. note the information communicated by the supervisor
GS2. note the raw materials used for production and the finished products produced
GS3. note the readings of the process parameters and provide necessary information to fill the process chart
GS4. note down observations (if any) related to the process
GS5. write information documents to internal departments/ internal teams
GS6. note down the data for online ERP or as per applicability in the organization
GS7. read and interpret the process required for producing various types of products
GS8. read and interpret and process flowchart for all products produced
GS9. read equipment manuals and process documents to understand the equipments operation and process requirement
GS10. read internal information documents sent by internal teams
GS11. discuss task lists, schedules and activities with the supervisor
GS12. effectively communicate with the team members
GS13. question the supervisor in order to understand the nature of the problem and to clarify queries
GS14. attentively listen and comprehend the information given by the speaker
GS15. communicate clearly with the supervisor and cross department teams on the issues faced during the process
GS16. analyze critical points in day to day tasks through experience and observation and identify control measures to solve the issue
GS17. handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)
GS18. plan and organize the work order and jobs received from the supervisor
GS19. organize raw materials and packaging materials required for all products following the instruction provided by the supervisor
GS20. plan and prioritize the work based on the instructions received from the supervisor
GS21. plan to utilise time and equipment's effectively
GS22. organize all process/ equipment manuals so as to access information easily
GS23. support the supervisor in scheduling tasks for helper(s)
GS24. understand customer requirements and their priority and respond as per their needs
GS25. support supervisor in solving problems by detailing out problems
GS26. discuss the possible solutions with the supervisor for problem solving
GS27. apply domain information about maintenance processes and technical knowledge about tools and equipment
GS28. use common sense and make judgments on day to day basis
GS29. use reasoning skills to identify and resolve basic problems
GS30. use intuition to detect any potential problems which could arise during operations
GS31. use acquired knowledge of the process for identifying and handling issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Receive, wash and sort fruits and vegetables	**4.5**	**5.5**	**-**	**-**
PC1. receive fruits and vegetables (tomato) from the supplier/vendor, check its weight and check the quality of fruits and veegtables through physical parameters such as appearance, colour, texture, maturity, etc.	1.5	1.5	-	-
PC2. open valves or start pump to fill water in the washing tank and control water level, dump fruits and vegetables in the washing tank for washing	0.5	0.5	-	-
PC3. switch on agitator of revolving screens/blades to immerse fruits and vegetables in water to remove dirt, soil and other impurities	0.5	0.5	-	-
PC4. start the ladder conveyor to lift fruits and vegetables from the washing tank and transfer to the washing line conveyor	0.5	0.5	-	-
PC5. open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on fruits and vegetables on washing line conveyor for rinsing	0.5	0.5	-	-
PC6. adjust controls to transfer washed fruit and vegetables to sorting/inspecting line, start and adjust speed of sorting/inspecting line conveyor to visually inspect and manually remove damaged, blemished and rotten fruits and vegetables	1	2	-	-
Peel, cut, deseed/de-stone fruits and vegetables	**3.5**	**6.5**	**-**	**-**
PC7. dump sorted fruits and vegetables in the peeler or corer (depending on the type of fruits), start machine , adjust speed to remove the peel or core of fruits or turn valves to introduce steam and adjust controls to maintain pressure for steam peeling fruits	1	2	-	-
PC8. open valve or pump water or open spraying system to wash the peeled fruits and vegetables, observe fruits and vegetables emerging from peeling /coring machine to ensure removal of peel/core	0.5	0.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC9. cut fruits and vegetables manually or load the fruits and vegetables in the chopper/cutter/slicer machine, adjust controls to cut fruits to required size, start machine, collect sliced fruits and vegetables from the discharge chute	1	2	-	-
PC10. in case of mangoes, start conveyor and control speed to allow washed mangoes to pass through tip cutting line, cut the tip of the fruit manually, control conveyor speed to dump the tip cut mangoes into de-stoner machine to remove seed and peel	0.5	1.5	-	-
PC11. control speed of waste disposal conveyor to dispose waste following SOP	0.5	0.5	-	-
Pulp fruits and vegetables, extract fruit juice	**3.5**	**6.5**	**-**	**-**
PC12. adjust and maintain speed of pulper conveyor to allow the fruits and vegetables to pass through the pulper cum finisher/ pulper refiner machine for pulping of fruits and vegetables and sieving pulp to required fineness, adjust position of discharge outlet to collect refined pulp in collection tank, check collected pulp to ensure it is free from seeds and fiber	0.5	1.5	-	-
PC13. replace damaged or clogged filter screen of pulper cum finisher/ pulper refiner machine	0.5	0.5	-	-
PC14. adjust controls of hydraulic press machine to extract juice, start machine and control speed/rotation, start conveyor to allow cut/grated fruit to pass through hydraulic press/juice extraction machine to extract juice, remove skin, seeds and fiber through filter sieves	0.5	1.5	-	-
PC15. change sieves or clean sieves of hydraulic press/juice extraction machine to avoid clogging	0.5	0.5	-	-
PC16. open valves or start pump to allow extracted juice through finer sieves to remove very small and undesirable particles and collect filtered juice in collection tanks	0.5	1.5	-	-
PC17. check the quality of fruit pulp/ fruit juice through physical parameters such as appearance, colour, odour, etc. sample and transfer to quality lab for analysis	1	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare jam and jelly	8.5	16.5	-	-
PC18. pump measured quantity of fruit pulp for preparing jam and fruit juice for preparing jelly (pulp of various fruit as per formulation for preparing mixed fruit jam) from holding tank/ container into cooking kettle/tank	1	2	-	-
PC19. set temperature, pressure, stirrer speed, etc. of the cooking kettle/tank, set mixing time, cooking time, cooking temperature, etc, open valves to admit steam through the kettle or light burner to heat fruit pulp / fruit juice to require temperature and thickness with continuous stirring to avoid sticking/scorching or stir manually	2	3	-	-
PC20. monitor pressure and temperature gauge and adjust controls to achieve specified pressure and temperature to cook fruit pulp / fruit juice	1	2	-	-
PC21. open valve or start pump to transfer measured quantity of water into pre-mixing tank, set speed of stirrer of pre-mixing tank to stir water, measure specified quantity of pectin following formulation and add to water in the pre-mixing tank, control speed of mixer for uniform mixing of pectin in water to prepare pectin solution	1	2	-	-
PC22. measure ingredients such as sugar, pectin solution, flavour, colour etc for batch referring to the formulation chart and add in sequence into pulp/juice in kettle following sop and continue cooking along with stirring	1	2	-	-
PC23. observe the cooking process and check the product in refractometer to ensure completeness of cooking process	1	2	-	-
PC24. check the quality of cooked product through physical parameters such as colour, appearance, texture, taste, etc., sample and transfer to quality lab for analysis and conformance to standards	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC25. start pump or open valve to transfer product into filling tank of the packaging machine or tilt kettle and scoop contents out of kettle into container, manually transfer into hopper of the filling machine for packaging or manually fill hot product in packaging containers	0.5	1.5	-	-
Prepare ketchup	**9**	**16**	**-**	**-**
PC26. pump measured quantity of tomato pulp/puree from holding tank/ container into cooking kettle	0.5	1.5	-	-
PC27. set temperature, pressure, stirrer speed, etc. of the cooking kettle, set mixing time, cooking time, cooking temperature etc, open valves to admit steam through the kettle or light burner to heat tomato paste to required temperature and thickness with continuous stirring to avoid sticking /scorching or stir manually	2	3	-	-
PC28. monitor pressure and temperature gauge and adjust controls to achieve specified temperature to cook tomato paste	1.5	2.5	-	-
PC29. measure ingredients such as sugar, salt, spice powder, vinegar, etc. required for batch, by referring to the formulation chart and add as per sequence into the tomato pulp/puree in kettle following sop and continue cooking	1.5	2.5	-	-
PC30. observe cooking process and check the quality of cooked product through feel, consistency, test the viscosity using viscometer to ensure completeness of the cooking process	1	3	-	-
PC31. check the quality of cooked product through physical parameters such as colour, appearance, texture, taste, etc., sample and transfer to quality lab for analysis and conformance to standards	2	2	-	-
PC32. start pump or open valve to transfer product into filling tank of the packaging machine or tilt kettle or scoop contents out of kettle into container, manually transfer into hopper of the filling machine for packaging or manually filling hot product in packaging containers	0.5	1.5	-	-
Fill and pack jam, jelly and ketchup	**4.5**	**10.5**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC33. open valves or start pump to transfer hot product into the packaging machine to pack jam/jelly	0.5	0.5	-	-
PC34. load packing materials such as glass bottle, plastic bottle, pouches, etc. and sealing materials such as lid, closures, etc. in packaging machines	0.5	0.5	-	-
PC35. set packaging machine for filling volume, speed, etc,, start automatic packaging machine for forming, washing bottles, filling, sealing container (or) fill measured quantity of hot product in packaging containers , place lid and close manually/ mechanically	0.5	1.5	-	-
PC36. start machine to fill hot product in the container, check weight of packed product periodically to ensure its conformance to standards	0.5	1.5	-	-
PC37. start cooling line conveyor and control speed to allow packed contianers to pass through the cooling tunnel, set controls of water temperature, pressure etc. and start machine to spray water on containers to cool and set product (setting in case of jam and jelly) or arrange filled jam/jelly containers in rack and allow to stand for specified time following SOP to cool and set product	0.5	1.5	-	-
PC38. start drying line conveyor and control speed to allow the cooled bottles to pass through the drying tunnel, set controls of air temperature, air flow rate etc. and start machine to dry bottle before labelling	0.5	1.5	-	-
PC39. load labels in labelling machine, set date coding machine for batch number, date of manufacture, date of expiry, etc., start labelling line conveyor and control speed to allow packed container to pass through labelling and date coding machine for labelling and date coding packed products	0.5	1.5	-	-
PC40. place the packed and labelled products in cartons and transfer to storage area and store maintaining storage conditions following SOP	0.5	1.5	-	-
PC41. report discrepancies/concerns to department supervisor for immediate action	0.5	0.5	-	-
Carry out post production cleaning and regular maintenance of equipments	**1.5**	**3.5**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC42. clean the work area, machineries, equipment and tools using approved cleaning agents and sanitizers	0.5	1.5	-	-
PC43. attend minor repairs/faults of all machines (if any)	0.5	1.5	-	-
PC44. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the SOP or following suppliers instructions/manuals	0.5	0.5	-	-
NOS Total	**35**	**65**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N0111
NOS Name	Produce jam, jelly and ketchup
Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Bread and Bakery, Packaged Goods
Occupation	GENERIC
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	29/07/2024
NSQC Clearance Date	29/07/2021

FIC/N0118: Dry/ Dehydrate fruits and vegetables

Description

This unit is about drying/dehydration of fruits and vegetables through various methods using machineries as per the specifications and standards of the organization.

Elements and Performance Criteria

Wash fruits and vegetables

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

PC1. receive fruits and vegetables from the supplier/vendor, check weight and check the quality through physical parameters such as appearance, colour, texture, maturity,etc.

PC2. open valves or start pump to fill water into the washing tank and control water level, dump fruits manually or start elevator conveyor to transfer fruits into washing tank forwashing (or) wash and rinse manually

PC3. switch on agitator of revolving screens/blades to immerse each fruit into water to remove dirt, soil, etc., start ladder conveyor to lift fruits from the washing tank and transfer to washing line conveyor

PC4. open valves of the high pressure spraying system for chlorinated water and fresh water, adjust pressure to spray water on fruits and vegetables to wash with chlorinated water and rinse with fresh water

Sort,peel, slice and blanch fruits and vegetables

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

PC5. start and adjust speed of sorting/inspecting line conveyor to transfer raw material to inspection station, inspect visually and remove damaged, blemished and rotten fruits, dispose waste following SOP

PC6. start conveyor or elevator and control speed to transfer sorted fruits and vegetables into peeler or corer machine (depending on the type of fruits and vegetables), start peeler/corer machine and control speed to remove peel or core of fruits and vegetables (or)

PC7. dump measured quantity of lye chemical into tank of heated water to prepare lye solution for lye peeling , turn valves to admit steam to heat lye solution in tank, observe dials and adjust controls to regulate pressure and temperature

PC8. start conveyor and adjust speed to carry fruit and vegetables through lye peeling machine or load by hand, set and adjust timer for immersion time following sop, observe fruit and vegetable emerging from machine to ensure removal of skin or membrane, open valve to drain the excess lye solution,(or)

PC9. turn valves to introduce steam and adjust controls to maintain pressure for steam peeling of fruits and vegetables, open valves of water spraying system to wash the peeled/ scalded fruits and vegetables

PC10. start conveyor to transfer fruits and vegetable to chopper/cutter/slicer machine to slice to specified size and shape following SOP

PC11. open valves or start pump to fill water in the blanching machine, adjust controls to set temperature, pressure, blanching time, etc. for different types of fruits and vegetables following sop, open valves to allow steam, observe dial and adjust controls to regulate and maintain set parameters

PC12. start feed conveyor and control speed to feed fruits and vegetables to and from the blanching machine, examine blanched fruits and vegetables visually and through feel/texture to determine adequacy of softening

Sulphurize fruits and vegetables

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

PC13. load fruits and vegetables (only that require sulphurizing) in trays either manually or mechanically for sulphur treatment, shake/tap trays (or) pass trays though vibrator machines to vibrate trays for uniform spreading of fruits and vegetable

PC14. place loaded trays in the cart, push loaded cart into sulphurizing chamber, set timer following sop for sulphurizing various types of fruits and vegetables, light burner to generate sulphur fumes and allow to stand for specified time, move cart out of the sulphurizing chamber after specified time (or)

PC15. pump measured quantity of water into sulphurizing tank, measure sulphurizing chemicals and add into water, mix manually or start stirrer and control speed for uniform mixing to prepare sulphur solution

PC16. load fruits and vegetables in basket and lower basket mechanically into sulphurizing tank (or) start conveyor and control speed to dump fruit and vegetables into sulphurizing tank,

PC17. start motor to lift basket (or) start conveyor and control speed to remove sulphur treated fruits and vegetables from sulphurizing tank after specified time and transfer to drying line

Sun dry fruits and vegetables

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

PC18. weigh pre-processed fruits and vegetables (with or without sulphur treatment) for drying, load in tray, shake/tap trays manually or pass trays though vibrator machines to vibrate for uniform spreading

PC19. transfer loaded trays to the drying area/yard, arrange in rows in drying area for exposure to direct sunlight, allow to stand until fruits and vegetable are completely dried drying time depends on intensity of sunlight), check drying produce periodically to check the completeness of drying

PC20. check the dried fruits and vegetables through feel and dryness to ensure complete removal of moisture

PC21. transfer dried product into scraping line, scrap trays manually using scrapper to remove dried product from the trays

PC22. start vibrating mesh conveyor and control vibration, transfer dried product on the conveyor to vibrate products and to remove any undesirable particles, start conveyor to transfer dried product to finished product inspection line

Hot air dry fruits and vegetables

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

PC23. adjust controls of hot air drier to set temperature and time, switch on drier to preheat (or) add fuel to furnace to heat drier (batch process)

PC24. move loaded cart from sulfurizing chamber into drier to dehydrate fruit and vegetables

PC25. adjust controls of drier to set drying temperature and drying time for various types of fruits and vegetables following sop, push button or turn knob to start drier, control speed of blower fan to circulate hot air and to maintain temperature inside drier

PC26. open drier after specified time, remove cart(s) from the drier and transfer to the cooling area, start fans and control speed to allow air to pass through dried product for cooling (or)

PC27. start drying line conveyor, load measured quantity of pre-processed fruits and vegetables on conveyor, control speed to transfer fruits and vegetables into tunnel drier(continuous process)

PC28. set control parameters of tunnel drier (in control panel of drier or in plc) like drier temperature, drying time, fan speed, air temperature, rate of air flow etc, start and control speed of conveyor to allow and control amount of material conveyed to tunnel drier for drying

PC29. observe gauges to verify temperature, adjust controls to maintain process parameters in tunnel drier

PC30. check the dried product passing out of tunnel drier through physical parameters like colour, appearance, dryness (through feel) , firmness etc or observe gauges to determine if moisture content of material conforms to standard

PC31. start cooling line conveyor and control speed, start fans and adjust speed to blow air on dried material passing through conveyor to cool dried products, start conveyor to transfer dried product to finished product inspection line

Freeze dry fruits and vegetables

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

PC32. load raw material (fruits and vegetables) cartons/crates in freezing room and close, set parameters like temperature, time etc of freezing room and allow to freeze until required temperature

PC33. monitor gauges to confirm raw materials have reached specified temperature, open freezing room and unload frozen produce, open carton and check frozen raw materials to ensure it is completely frozen (i.e. converted to ice crystals)

PC34. start ladder/elevator conveyor and control speed, open cartons and dump frozen produce on the conveyor and allow to pass to the inspection line

PC35. start and adjust speed of sorting/inspection line conveyor, inspect visually and remove produce non-conforming to standards

PC36. load sorted frozen produce in trays and load them in carts, set control parameters like temperature, time etcof cold storage room following sop for cooling, move loaded carts into cold storage room/chamber, close door, maintain set parameters and allow produce to cool for specified time to achieve required fineness, unload carts from cold storage room, check if cooled produce have achieved required firmness

PC37. set controls of freeze drying chamber like pressure, time etc in control panel or in plc, load carts in freezing chamber for freeze drying fruits and vegetables, observe gauges and adjust controls to maintain process parameters

PC38. open freeze drying chamber after specified time, unload cart, check freeze dried product through physical parameters like colour, flavour, appearance, dryness (through feel) etc, sample dried product and transfer to quality lab for analysis, transfer the product to bins or boxes and hold for specified time to equalize moisture content

Inspect, pack and store dried/dehydrated fruits and vegetables

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

PC39. set controls of electronic colour sorter and metal detector, start finished product inspection line conveyor and control speed, load dried product on conveyor and allow to pass though visual inspection station, electronic colour sorter and metal detector to remove metals and products that do not conform to standards

PC40. start packaging line conveyor to transfer product to packaging machine, start pump or manually loaddried/dehydrated products in the hopper of the packaging machine to pack finished product

PC41. load packing materials in packaging machine and set packing quantity, set date coding machine for date code details like batch number, date of manufacture, date of expiry etc

PC42. start automatic packaging machine to form, fill and seal measured quantity of finished products, check weight of packed product periodically to ensure its conformance to standards

PC43. sample packed product and transfer to quality lab for analysis and to ensure its conformance to qualitystandards

PC44. place packed and labelled products in cartons and transfer to storage area and store maintaining storage conditions following sop

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

Carry out post production cleaning and regular maintenance of equipments

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

PC46. clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers

PC47. attend minor repairs/faults of all machines (if any)

PC48. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organization standards, process standards and procedures followed in the organisation

KU2. types of products produced by the organisation

KU3. code of business conduct

KU4. dress code to be followed

KU5. job responsibilities/duties and standard operating procedures

KU6. internal processes such as procurement, store management, inventory management, quality management and key contact points for query resolution

KU7. provision of wages, working hours and accident compensation as per organisation policy

KU8. food safety and hygiene standards followed

KU9. types and varieties of raw materials (various fruits and vegetables)

KU10. various types of drying and dehydration process

KU11. production process, parameters for drying/dehydration of various fruits and vegetables

KU12. types of machineries used in processing and machineries used in the organisation

KU13. handling all processing machineries

KU14. maintenance of machineries, equipments and tools

KU15. basic mathematics

KU16. calculation of raw material to yield of finished product

KU17. procedures for disposal of waste from agricultural produce

KU18. quality parameters, basic food microbiology and quality assessment based on physical parameters
KU19. types and category of packaging materials, packaging machineries
KU20. storage procedures for raw materials, packaging materials and finished goods
KU21. cleaning procedures such as CIP and COP
KU22. knowledge on sanitizers and disinfectants and its handling and storing methods
KU23. food laws and regulations on product, packaging and labelling
KU24. food safety and hygiene
KU25. GMP
KU26. HACCP

Generic Skills (GS)

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

GS1. note the information communicated by the supervisor
GS2. note the raw materials used for production and the finished products produced
GS3. note the readings of the process parameters and provide necessary information to fill the process chart
GS4. note down observations (if any) related to the process
GS5. write information documents to internal departments/ internal teams
GS6. note down the data for online ERP or as per applicability in the organization
GS7. read and interpret the process required for producing various types of products
GS8. read and interpret and process flowchart for all products produced
GS9. read equipment manuals and process documents to understand the equipments operation and process requirement
GS10. read internal information documents sent by internal teams
GS11. discuss task lists, schedules and activities with the supervisor
GS12. effectively communicate with the team members
GS13. question the supervisor in order to understand the nature of the problem and to clarify queries
GS14. attentively listen and comprehend the information given by the speaker
GS15. communicate clearly with the supervisor and cross department teams on the issues faced during process
GS16. analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue
GS17. handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)
GS18. plan and organize the work order and jobs received from the supervisor
GS19. organize raw materials and packaging materials required for all products following the instruction provided by the supervisor
GS20. plan and prioritize the work based on the instructions received from the supervisor

GS21. plan to utilise time and equipment's effectively
GS22. organize all process/ equipment manuals so as to access information easily
GS23. support the supervisor in scheduling tasks for helper(s)
GS24. understand customer requirements and their priority and respond as per their needs
GS25. support supervisor in solving problems by detailing out problems
GS26. discuss the possible solutions with the supervisor for problem solving
GS27. apply domain information about maintenance Processes and technical knowledge about tools and equipment
GS28. use common sense and make judgments on day to day basis
GS29. use reasoning skills to identify and resolve basic problems
GS30. use intuition to detect any potential problems which could arise during operations
GS31. use acquired knowledge of the process for identifying and handling issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Wash fruits and vegetables	3	7	-	-
PC1. receive fruits and vegetables from the supplier/vendor, check weight and check the quality through physical parameters such as appearance, colour, texture, maturity,etc.	1.5	2.5	-	-
PC2. open valves or start pump to fill water into the washing tank and control water level, dump fruits manually or start elevator conveyor to transfer fruits into washing tank forwashing (or) wash and rinse manually	0.5	1.5	-	-
PC3. switch on agitator of revolving screens/blades to immerse each fruit into water to remove dirt, soil, etc., start ladder conveyor to lift fruits from the washing tank and transfer to washing line conveyor	0.5	1.5	-	-
PC4. open valves of the high pressure spraying system for chlorinated water and fresh water, adjust pressure to spray water on fruits and vegetables to wash with chlorinated water and rinse with fresh water	0.5	1.5	-	-
Sort,peel, slice and blanch fruits and vegetables	4	6	-	-
PC5. start and adjust speed of sorting/inspecting line conveyor to transfer raw material to inspection station, inspect visually and remove damaged, blemished and rotten fruits, dispose waste following SOP	0.5	1.5	-	-
PC6. start conveyor or elevator and control speed to transfer sorted fruits and vegetables into peeler or corer machine (depending on the type of fruits and vegetables), start peeler/corer machine and control speed to remove peel or core of fruits and vegetables (or)	0.5	0.5	-	-
PC7. dump measured quantity of lye chemical into tank of heated water to prepare lye solution for lye peeling , turn valves to admit steam to heat lye solution in tank, observe dials and adjust controls to regulate pressure and temperature	0.5	0.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC8. start conveyor and adjust speed to carry fruit and vegetables through lye peeling machine or load by hand, set and adjust timer for immersion time following sop, observe fruit and vegetable emerging from machine to ensure removal of skin or membrane, open valve to drain the excess lye solution,(or)	0.5	0.5	-	-
PC9. turn valves to introduce steam and adjust controls to maintain pressure for steam peeling of fruits and vegetables, open valves of water spraying system to wash the peeled/ scalded fruits and vegetables	0.5	0.5	-	-
PC10. start conveyor to transfer fruits and vegetable to chopper/cutter/slicer machine to slice to specified size and shape following SOP	0.5	0.5	-	-
PC11. open valves or start pump to fill water in the blanching machine, adjust controls to set temperature, pressure, blanching time, etc. for different types of fruits and vegetables following sop, open valves to allow steam, observe dial and adjust controls to regulate and maintain set parameters	0.5	1.5	-	-
PC12. start feed conveyor and control speed to feed fruits and vegetables to and from the blanching machine, examine blanched fruits and vegetables visually and through feel/texture to determine adequacy of softening	0.5	0.5	-	-
Sulphurize fruits and vegetables	3	7	-	-
PC13. load fruits and vegetables (only that require sulphurizing) in trays either manually or mechanically for sulphur treatment, shake/tap trays (or) pass trays though vibrator machines to vibrate trays for uniform spreading of fruits and vegetable	0.5	0.5	-	-
PC14. place loaded trays in the cart, push loaded cart into sulphurizing chamber, set timer following sop for sulphurizing various types of fruits and vegetables, light burner to generate sulphur fumes and allow to stand for specified time, move cart out of the sulphurizing chamber after specified time (or)	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. pump measured quantity of water into sulphurizing tank, measure sulphurizing chemicals and add into water, mix manually or start stirrer and control speed for uniform mixing to prepare sulphur solution	0.5	1.5	-	-
PC16. load fruits and vegetables in basket and lower basket mechanically into sulphurizing tank (or) start conveyor and control speed to dump fruit and vegetables into sulphurizing tank,	0.5	1.5	-	-
PC17. start motor to lift basket (or) start conveyor and control speed to remove sulphur treated fruits and vegetables from sulphurizing tank after specified time and transfer to drying line	0.5	1.5	-	-
Sun dry fruits and vegetables	4.5	10.5	-	-
PC18. weigh pre-processed fruits and vegetables (with or without sulphur treatment) for drying, load in tray, shake/tap trays manually or pass trays though vibrator machines to vibrate for uniform spreading	1	2	-	-
PC19. transfer loaded trays to the drying area/yard, arrange in rows in drying area for exposure to direct sunlight, allow to stand until fruits and vegetable are completely dried drying time depends on intensity of sunlight), check drying produce periodically to check the completeness of drying	1	3	-	-
PC20. check the dried fruits and vegetables through feel and dryness to ensure complete removal of moisture	1	2	-	-
PC21. transfer dried product into scraping line, scrap trays manually using scrapper to remove dried product from the trays	0.5	1.5	-	-
PC22. start vibrating mesh conveyor and control vibration, transfer dried product on the conveyor to vibrate products and to remove any undesirable particles, start conveyor to transfer dried product to finished product inspection line	1	2	-	-
Hot air dry fruits and vegetables	7	13	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC23. adjust controls of hot air drier to set temperature and time, switch on drier to preheat (or) add fuel to furnace to heat drier (batch process)	0.5	1.5	-	-
PC24. move loaded cart from sulfurizing chamber into drier to dehydrate fruit and vegetables	0.5	0.5	-	-
PC25. adjust controls of drier to set drying temperature and drying time for various types of fruits and vegetables following sop, push button or turn knob to start drier, control speed of blower fan to circulate hot air and to maintain temperature inside drier	1	2	-	-
PC26. open drier after specified time, remove cart(s) from the drier and transfer to the cooling area, start fans and control speed to allow air to pass through dried product for cooling (or)	0.5	1.5	-	-
PC27. start drying line conveyor, load measured quantity of pre-processed fruits and vegetables on conveyor, control speed to transfer fruits and vegetables into tunnel drier(continuous process)	1	2	-	-
PC28. set control parameters of tunnel drier (in control panel of drier or in plc) like drier temperature, drying time, fan speed, air temperature, rate of air flow etc, start and control speed of conveyor to allow and control amount of material conveyed to tunnel drier for drying	1	2	-	-
PC29. observe gauges to verify temperature, adjust controls to maintain process parameters in tunnel drier	0.5	1.5	-	-
PC30. check the dried product passing out of tunnel drier through physical parameters like colour, appearance, dryness (through feel) , firmness etc or observe gauges to determine if moisture content of material conforms to standard	1	1	-	-
PC31. start cooling line conveyor and control speed, start fans and adjust speed to blow air on dried material passing through conveyor to cool dried products, start conveyor to transfer dried product to finished product inspection line	1	1	-	-
Freeze dry fruits and vegetables	**7.5**	**12.5**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC32. load raw material (fruits and vegetables) cartons/crates in freezing room and close, set parameters like temperature, time etc of freezing room and allow to freeze until required temperature	1	2	-	-
PC33. monitor gauges to confirm raw materials have reached specified temperature, open freezing room and unload frozen produce, open carton and check frozen raw materials to ensure it is completely frozen (i.e. converted to ice crystals)	0.5	1.5	-	-
PC34. start ladder/elevator conveyor and control speed, open cartons and dump frozen produce on the conveyor and allow to pass to the inspection line	0.5	1.5	-	-
PC35. start and adjust speed of sorting/inspection line conveyor, inspect visually and remove produce non-conforming to standards	0.5	1.5	-	-
PC36. load sorted frozen produce in trays and load them in carts, set control parameters like temperature, time etcof cold storage room following sop for cooling, move loaded carts into cold storage room/chamber, close door, maintain set parameters and allow produce to cool for specified time to achieve required fineness, unload carts from cold storage room, check if cooled produce have achieved required firmness	2	2	-	-
PC37. set controls of freeze drying chamber like pressure, time etc in control panel or in plc, load carts in freezing chamber for freeze drying fruits and vegetables, observe gauges and adjust controls to maintain process parameters	2	2	-	-
PC38. open freeze drying chamber after specified time, unload cart, check freeze dried product through physical parameters like colour, flavour, appearance, dryness (through feel) etc, sample dried product and transfer to quality lab for analysis, transfer the product to bins or boxes and hold for specified time to equalize moisture content	1	2	-	-
Inspect, pack and store dried/dehydrated fruits and vegetables	4.5	5.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC39. set controls of electronic colour sorter and metal detector, start finished product inspection line conveyor and control speed, load dried product on conveyor and allow to pass though visual inspection station, electronic colour sorter and metal detector to remove metals and products that do not conform to standards	0.5	1.5	-	-
PC40. start packaging line conveyor to transfer product to packaging machine, start pump or manually loaddried/dehydrated products in the hopper of the packaging machine to pack finished product	0.5	0.5	-	-
PC41. load packing materials in packaging machine and set packing quantity, set date coding machine for date code details like batch number, date of manufacture, date of expiry etc	1	1	-	-
PC42. start automatic packaging machine to form, fill and seal measured quantity of finished products, check weight of packed product periodically to ensure its conformance to standards	0.5	0.5	-	-
PC43. sample packed product and transfer to quality lab for analysis and to ensure its conformance to qualitystandards	1	1	-	-
PC44. place packed and labelled products in cartons and transfer to storage area and store maintaining storage conditions following sop	0.5	0.5	-	-
PC45. report discrepancies/concerns to department supervisor for immediate action	0.5	0.5	-	-
Carry out post production cleaning and regular maintenance of equipments	**1.5**	**3.5**	**-**	**-**
PC46. clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers	0.5	1.5	-	-
PC47. attend minor repairs/faults of all machines (if any)	0.5	1.5	-	-
PC48. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals	0.5	0.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	35	65	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N0118
NOS Name	Dry/ Dehydrate fruits and vegetables
Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Bread and Bakery, Packaged Goods
Occupation	GENERIC
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	30/07/2024
NSQC Clearance Date	30/09/2021

FIC/N0122: Produce fruit pulp from various fruits

Description

This unit is about producing fruit pulp from various fruits using various machineries as per the specifications and standards of the organization.

Elements and Performance Criteria

Receive and ripen fruits

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

PC1. receive fruits from the supplier/vendor and check weight

PC2. check quality through physical parameters such as appearance, colour, texture, maturity, etc.

PC3. load fruits in fruit ripening chamber, adjust controls to set required temperature, time, relative humidity to pre-cool the fruit, monitor temperature to ensure the fruit is cooled to required temperature

PC4. open and control the regulator of the ethylene generator or use plc to introduce ethylene into the chamber to initiate ripening of fruit, monitor air circulation system for uniform ethylene flow for specified period, adjust controlling system to maintain required temperature, relative humidity, etc. for specified period, adjust ventilation system at periodic interval by controlling the speed of exhaust fan to remove carbon-di-oxide

PC5. open ripening chamber after specified period, start fan to ventilate ethylene gas, stop fan after ventilation, unload the ripened fruit from the ripening chamber, check the quality of ripened fruit and transfer to processing area

Wash and sort fruits

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

PC6. open valves or start pump to fill water in washing tank and control water level, dump fruits into the washing tank for washing

PC7. switch on agitator of revolving screens/blades to immerse each fruit into water to remove dirt, soil, etc.

PC8. start the ladder conveyor to lift fruits from the washing tank and transfer to the washing line conveyor

PC9. open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on fruits for rinsing

PC10. adjust controls to transfer washed fruit to sorting/inspecting line, start and adjust speed of sorting/inspecting line conveyor to visually inspect and manually remove damaged, blemished and rotten fruits

Peel/de seed/ destone fruits

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

PC11. dump sorted fruits in the peeler or corer (depending on the type of fruits), start machine , adjust speed to remove the peel or core of fruits (or) turn valves to introduce steam and adjust controls to maintain pressure for steam peeling

PC12. open valve or pump water or open spraying system to wash peeled fruits, observe fruits emerging from peeling /coring machine to ensure removal of peel/core

PC13. cut fruits manually (or) load the fruits in the chopper/cutter/slicer machine, adjust controls to cut fruits to required size, start machine, collect sliced fruits from the discharge chute

PC14. in case of mangoes, start conveyor and control speed to allow washed mangoes to pass through mango tip cutting line, cut the mango tip manually, control conveyor speed to dump the tip cut mangoes into de-stoner machine to remove seed and peel

PC15. control speed of waste disposal conveyor to dispose waste following sop

Pulp fruit and pre cook pulp

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

PC16. adjust and maintain speed of pulper conveyor to allow fruits to pass through the pulper cum finisher/ pulper refiner machine for pulping fruits and sieving pulp to required fineness, adjust position of discharge outlet to collect refined pulp in collection tank, check collected pulp to ensure it is free from seeds and fiber

PC17. replace damaged or clogged filter screen of pulper cum finisher/ pulper refiner machine

PC18. start pump to transfer measured quantity of pulp from collection tank to steam jacketed kettle/ pre-cooking tank for cooking pulp, check pumped quantity through the level indicator and glass windows of the pre-cooking tank, adjust controls to set pressure, temperature, cooking time, stirrer speed, etc., open valve to allow steam to pass though kettle for pre-cooking/ pre-heating pulp to required temperature, examine pre-cooked fruits through feel/texture

PC19. open valves to allow pre-cooked pulp to pass through de-canter machine to remove black specks, set control of the machine such as speed of screw conveyor in machine and speed/ rotation and start machine to remove black specks (in case of mango)

PC20. collect the pre-cooked pulp in the collection tank/ holding tank, sample pulp and transfer to quality lab for analysis and conformance to organisation standards

PC21. set controls of de-aerator machine to remove air from pulp for extended shelf-life, start machine, open valves/start pump to transfer measured quantity of pre-cooked pulp into de-aeration tank to de-aerate pulp

PC22. set controls of evaporator like flow rate of pulp, temperature, residence time etc to concentrate pulp (for processing concentrated pulp), switch on machine to transfer measured quantity of de-aerated pulp into continuous evaporator for concentrating pulp

Carry out aseptic sterilization and packing of fruit pulp

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

PC23. open valves/start pump to transfer measured quantity of pre- ooked(or) deaerated and concentrated pulp into sterilization tank to sterilize pulp before aseptic packing, adjust controls to set temperature, pressure, time, etc. and open valves to allow steam to pass through sterilization tank, switch on machine to start sterilization, observe through glass windows of the sterilization tank, monitor and maintain steam pressure by adjusting gauges to sterilize fruit pulp to organisation standards

PC24. set controls to allow the sterilized pulp to pass to the aseptic surge tank for filling, maintain temperature of product surge tank until filling, set controls of the product filler of aseptic filling machine for filling volume, pressure, temperature, etc.

PC25. place plastic liners in the container (drums, cartons etc), date code aseptic bags with details like date of manufacture, date of expiry etc and place inside the liner for filling pulp, start conveyor and control speed to move the drum with aseptic bags under the aseptic (product) filling machine

PC26. fix the spout of the aseptic bag to the filling nozzle of the machine, set controls like pressure, temperature, filling volume etc and start machine to fill hot sterile product and automatically seal/ close with sterile closures

PC27. start conveyor to move the container with filled aseptic bags to the weighing area, check the weight of the container, label the container with details like batch number, date of manufacture, date of expiry, volume/weight etc

PC28. cover the aseptic bags with liner, place lid on drums, close and seal lid, transfer to the storage area and store by maintaining storage conditions and following SOP

Can fruit pulp

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

PC29. operate can reformer, flanger, seamer, can body beader and embossing machines to form cans

PC30. press button to activate machine-lift that raises stacked cans and transfers them onto mechanical conveyor (in mechanical units), observe passing cans and remove defective/ damaged cans from conveyor and discard following SOP

PC31. start machine that automatically feeds empty cans onto conveyors leading to washing, filling and sealing machines (or) set controls like temperature, pressure, conveyor speed of empty can machine, place empty cans in the conveyor and start machine to sterilize cans, collect sterilized cans from other end of the conveyor and transfer to the filling machine

PC32. start conveyor to allow sterilized cans to pass through the filling line (or) place sterilized cans manually in the filling line conveyor

PC33. start pump to fill pre-cooked/pre-heated pulp into the filling tank, set temperature, volume etc and start machine to fill pulp in cans, control speed of conveyor to transfer filled cans to the can seaming machine (or) manually place lid over the filled cans and seal in cans in can seamer machine

PC34. load the canned product manually in metal baskets, start motor to lower the basket with cans in lager tank with hot water, allow steam to pass through tank to heat continuously to sterilize can to specified temperature and time, mechanically lift basket with sterilised cans from hot water tank and place in cold water tank, open valves to circulate cold water in tanks to cool cans, dry cans manually (or)

PC35. load the canned product into the retort manually or mechanically through push trucks, close retort door or lid, and turn wheels or moves levers to seal chamber, adjust controls to set pressure, temperature and time of the retort chamber to sterilize canned product following sop

PC36. set process parameters like pressure, temperature, sterilization time etc in the retort following sop, turns valves to admit steam to retort, observe dials and gauges and adjust controls to maintain process parameters, turn valves to release steam and allow cool water into chamber to prevent overcooking

PC37. open retort and move the canned product to the cooling line conveyor, open valves of the water spraying system and adjust pressure to spray cold water on cans passing though cooling line conveyor, transfer cooled cans to drying line conveyor and start conveyor, set and control temperature and air flow to dry adhering water from the cooled cans

PC38. load labels in the packaging machine and set date coding machine for batch number, date of manufacture, date of expiry etc, start labeling machine and date codling machine to label and date code cans, sample canned product and transfer to quality lab for analysis, pack labeled cans into cartons and transfer to storage area and store maintaining storage conditions following SOP

PC39. report discrepancies/concerns to department supervisor for immediate action

Carry out post production cleaning and regular maintenance of equipments

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

PC40. clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers

PC41. attend minor repairs/faults of all machines (if any)

PC42. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organization standards, process standards and procedures followed in the organisation

KU2. types of products produced by the organisation

KU3. code of business conduct

KU4. dress code to be followed

KU5. job responsibilities/duties and standard operating procedures relavant to prodution process

KU6. internal processes like procurement, store management, inventory management, quality management and key contact points for query resolution

KU7. provision of wages, working hours, accident compensation as per organisation policy

KU8. food safety and hygiene standards followed

KU9. types and varieties of raw materials (various fruits)

KU10. production process, process parameters for various types of fruits

KU11. types of machineries used in processing and machineries used in the organisation

KU12. handling all processing machineries

KU13. maintenance of machineries, equipments and tools

KU14. basic mathematics

KU15. aseptic packaging process and parameters, handling aseptic packaging machineries

KU16. canning process and parameters, handling canning machineries

KU17. procedures for disposal of waste from agricultural produce

KU18. quality parameters, basic food microbiology and quality assessment based on physical parameters

KU19. types and category of packaging materials, packaging machineries

KU20. storage procedures for raw materials, packaging materials and finished goods

KU21. cleaning procedures like CIP and COP

KU22. knowledge on sanitizers and disinfectants and its handling and storing methods

KU23. food laws and regulations on product, packaging and labelling

KU24. food safety and hygiene

KU25. GMP

KU26. HACCP

Generic Skills (GS)

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

GS1. note the information communicated by the supervisor
GS2. note the raw materials used for production and the finished products produced
GS3. note the readings of the process parameters and provide necessary information to fill the process chart
GS4. note down observations (if any) related to the process
GS5. write information documents to internal departments/ internal teams
GS6. note down the data for online ERP or as per applicability in the organization
GS7. read and interpret the process required for producing various types of products
GS8. read and interpret and process flowchart for all products produced
GS9. read equipment manuals and process documents to understand the equipments operation and process requirement
GS10. read internal information documents sent by internal teams
GS11. discuss task lists, schedules and activities with the supervisor
GS12. effectively communicate with the team members
GS13. question the supervisor in order to understand the nature of the problem and to clarify queries
GS14. attentively listen and comprehend the information given by the speaker
GS15. communicate clearly with the
GS16. analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue
GS17. handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)
GS18. plan and organize the work order and jobs received from the supervisor
GS19. organize raw materials and packaging materials required for all products following the instruction provided by the supervisor
GS20. plan and prioritize the work based on the instructions received from the supervisor
GS21. plan to utilise time and equipment's effectively
GS22. organize all process/ equipment manuals so as to access information easily
GS23. support the supervisor in scheduling tasks for helper(s)
GS24. understand customer requirements and their priority and respond as per their needs
GS25. support supervisor in solving problems by detailing out problems
GS26. discuss the possible solutions with the supervisor for problem solving
GS27. apply domain information about maintenance processes and technical knowledge about tools and equipment
GS28. use common sense and make judgments on day to day basis
GS29. use reasoning skills to identify and resolve basic problems
GS30. use intuition to detect any potential problems which could arise during operations
GS31. use acquired knowledge of the process for identifying and handling issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Receive and ripen fruits	**3.5**	**6.5**	**-**	**-**
PC1. receive fruits from the supplier/vendor and check weight	0.5	0.5	-	-
PC2. check quality through physical parameters such as appearance, colour, texture, maturity, etc.	0.5	0.5	-	-
PC3. load fruits in fruit ripening chamber, adjust controls to set required temperature, time, relative humidity to pre-cool the fruit, monitor temperature to ensure the fruit is cooled to required temperature	1	2	-	-
PC4. open and control the regulator of the ethylene generator or use plc to introduce ethylene into the chamber to initiate ripening of fruit, monitor air circulation system for uniform ethylene flow for specified period, adjust controlling system to maintain required temperature, relative humidity, etc. for specified period, adjust ventilation system at periodic interval by controlling the speed of exhaust fan to remove carbon-di-oxide	1	2	-	-
PC5. open ripening chamber after specified period, start fan to ventilate ethylene gas, stop fan after ventilation, unload the ripened fruit from the ripening chamber, check the quality of ripened fruit and transfer to processing area	0.5	1.5	-	-
Wash and sort fruits	**2.5**	**7.5**	**-**	**-**
PC6. open valves or start pump to fill water in washing tank and control water level, dump fruits into the washing tank for washing	0.5	1.5	-	-
PC7. switch on agitator of revolving screens/blades to immerse each fruit into water to remove dirt, soil, etc.	0.5	1.5	-	-
PC8. start the ladder conveyor to lift fruits from the washing tank and transfer to the washing line conveyor	0.5	1.5	-	-
PC9. open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on fruits for rinsing	0.5	1.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. adjust controls to transfer washed fruit to sorting/inspecting line, start and adjust speed of sorting/inspecting line conveyor to visually inspect and manually remove damaged, blemished and rotten fruits	0.5	1.5	-	-
Peel/de seed/ destone fruits	3	7	-	-
PC11. dump sorted fruits in the peeler or corer (depending on the type of fruits), start machine , adjust speed to remove the peel or core of fruits (or) turn valves to introduce steam and adjust controls to maintain pressure for steam peeling	1	2	-	-
PC12. open valve or pump water or open spraying system to wash peeled fruits, observe fruits emerging from peeling /coring machine to ensure removal of peel/core	0.5	1.5	-	-
PC13. cut fruits manually (or) load the fruits in the chopper/cutter/slicer machine, adjust controls to cut fruits to required size, start machine, collect sliced fruits from the discharge chute	0.5	1.5	-	-
PC14. in case of mangoes, start conveyor and control speed to allow washed mangoes to pass through mango tip cutting line, cut the mango tip manually, control conveyor speed to dump the tip cut mangoes into de-stoner machine to remove seed and peel	0.5	1.5	-	-
PC15. control speed of waste disposal conveyor to dispose waste following sop	0.5	0.5	-	-
Pulp fruit and pre cook pulp	13	22	-	-
PC16. adjust and maintain speed of pulper conveyor to allow fruits to pass through the pulper cum finisher/ pulper refiner machine for pulping fruits and sieving pulp to required fineness, adjust position of discharge outlet to collect refined pulp in collection tank, check collected pulp to ensure it is free from seeds and fiber	3	5	-	-
PC17. replace damaged or clogged filter screen of pulper cum finisher/ pulper refiner machine	0.5	1.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC18. start pump to transfer measured quantity of pulp from collection tank to steam jacketed kettle/ pre-cooking tank for cooking pulp, check pumped quantity through the level indicator and glass windows of the pre-cooking tank, adjust controls to set pressure, temperature, cooking time, stirrer speed, etc., open valve to allow steam to pass though kettle for pre-cooking/ pre-heating pulp to required temperature, examine pre-cooked fruits through feel/texture	3	5	-	-
PC19. open valves to allow pre-cooked pulp to pass through de-canter machine to remove black specks, set control of the machine such as speed of screw conveyor in machine and speed/ rotation and start machine to remove black specks (in case of mango)	2	3	-	-
PC20. collect the pre-cooked pulp in the collection tank/ holding tank, sample pulp and transfer to quality lab for analysis and conformance to organisation standards	0.5	1.5	-	-
PC21. set controls of de-aerator machine to remove air from pulp for extended shelf-life, start machine, open valves/start pump to transfer measured quantity of pre-cooked pulp into de-aeration tank to de-aerate pulp	2	3	-	-
PC22. set controls of evaporator like flow rate of pulp, temperature, residence time etc to concentrate pulp (for processing concentrated pulp), switch on machine to transfer measured quantity of de-aerated pulp into continuous evaporator for concentrating pulp	2	3	-	-
Carry out aseptic sterilization and packing of fruit pulp	**4.5**	**10.5**	**-**	**-**
PC23. open valves/start pump to transfer measured quantity of pre- ooked(or) deaerated and concentrated pulp into sterilization tank to sterilize pulp before aseptic packing, adjust controls to set temperature, pressure, time, etc. and open valves to allow steam to pass through sterilization tank, switch on machine to start sterilization, observe through glass windows of the sterilization tank, monitor and maintain steam pressure by adjusting gauges to sterilize fruit pulp to organisation standards	1	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC24. set controls to allow the sterilized pulp to pass to the aseptic surge tank for filling, maintain temperature of product surge tank until filling, set controls of the product filler of aseptic filling machine for filling volume, pressure, temperature, etc.	1	3	-	-
PC25. place plastic liners in the container (drums, cartons etc), date code aseptic bags with details like date of manufacture, date of expiry etc and place inside the liner for filling pulp, start conveyor and control speed to move the drum with aseptic bags under the aseptic (product) filling machine	1	1	-	-
PC26. fix the spout of the aseptic bag to the filling nozzle of the machine, set controls like pressure, temperature, filling volume etc and start machine to fill hot sterile product and automatically seal/ close with sterile closures	0.5	1.5	-	-
PC27. start conveyor to move the container with filled aseptic bags to the weighing area, check the weight of the container, label the container with details like batch number, date of manufacture, date of expiry, volume/weight etc	0.5	1.5	-	-
PC28. cover the aseptic bags with liner, place lid on drums, close and seal lid, transfer to the storage area and store by maintaining storage conditions and following SOP	0.5	0.5	-	-
Can fruit pulp	**6.5**	**8.5**	**-**	**-**
PC29. operate can reformer, flanger, seamer, can body beader and embossing machines to form cans	0.5	0.5	-	-
PC30. press button to activate machine-lift that raises stacked cans and transfers them onto mechanical conveyor (in mechanical units), observe passing cans and remove defective/ damaged cans from conveyor and discard following SOP	0.5	0.5	-	-
PC31. start machine that automatically feeds empty cans onto conveyors leading to washing, filling and sealing machines (or) set controls like temperature, pressure, conveyor speed of empty can machine, place empty cans in the conveyor and start machine to sterilize cans, collect sterilized cans from other end of the conveyor and transfer to the filling machine	0.5	0.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC32. start conveyor to allow sterilized cans to pass through the filling line (or) place sterilized cans manually in the filling line conveyor	0.5	0.5	-	-
PC33. start pump to fill pre-cooked/pre-heated pulp into the filling tank, set temperature, volume etc and start machine to fill pulp in cans, control speed of conveyor to transfer filled cans to the can seaming machine (or) manually place lid over the filled cans and seal in cans in can seamer machine	0.5	1.5	-	-
PC34. load the canned product manually in metal baskets, start motor to lower the basket with cans in lager tank with hot water, allow steam to pass through tank to heat continuously to sterilize can to specified temperature and time, mechanically lift basket with sterilised cans from hot water tank and place in cold water tank, open valves to circulate cold water in tanks to cool cans, dry cans manually (or)	0.5	1.5	-	-
PC35. load the canned product into the retort manually or mechanically through push trucks, close retort door or lid, and turn wheels or moves levers to seal chamber, adjust controls to set pressure, temperature and time of the retort chamber to sterilize canned product following sop	1	1	-	-
PC36. set process parameters like pressure, temperature, sterilization time etc in the retort following sop, turns valves to admit steam to retort, observe dials and gauges and adjust controls to maintain process parameters, turn valves to release steam and allow cool water into chamber to prevent overcooking	0.5	0.5	-	-
PC37. open retort and move the canned product to the cooling line conveyor, open valves of the water spraying system and adjust pressure to spray cold water on cans passing though cooling line conveyor, transfer cooled cans to drying line conveyor and start conveyor, set and control temperature and air flow to dry adhering water from the cooled cans	1	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC38. load labels in the packaging machine and set date coding machine for batch number, date of manufacture, date of expiry etc, start labeling machine and date codling machine to label and date code cans, sample canned product and transfer to quality lab for analysis, pack labeled cans into cartons and transfer to storage area and store maintaining storage conditions following SOP	0.5	0.5	-	-
PC39. report discrepancies/concerns to department supervisor for immediate action	0.5	0.5	-	-
Carry out post production cleaning and regular maintenance of equipments	2	3	-	-
PC40. clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers	0.5	1.5	-	-
PC41. attend minor repairs/faults of all machines (if any)	1	1	-	-
PC42. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals	0.5	0.5	-	-
NOS Total	**35**	**65**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N0122
NOS Name	Produce fruit pulp from various fruits
Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Bread and Bakery, Packaged Goods
Occupation	GENERIC
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	30/07/2024
NSQC Clearance Date	30/09/2021

FIC/N0126: Can fruits and vegetables

Description

This unit is about canning fruits and vegetables using various machineries as per the specifications and standards of the organization.

Elements and Performance Criteria

Wash fruits and vegetables for canning

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

PC1. receive fruits and vegetables from the supplier/vendor, check weight and check the quality through physical parameters such as appearance, colour, maturity, etc.

PC2. open valve or start pump to fill water in the washing tank and control water level, dump fruit and vegetables manually for washing or start ladder conveyor to carry fruits and vegetables into the washing tank, switch on the agitating or revolving screens to immerse each fruit and vegetable into the water

PC3. start ladder conveyor to transfer washed produce from washing tank to washing line conveyor, start conveyor and adjust speed

PC4. open valves of the high pressure spraying system for chlorinated water and fresh water, adjust pressure to spray water on fruits and vegetables to wash with chlorinated water and rinse with fresh water

Sort, peel, slice and blanch fruits and vegetables for canning

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

PC5. start and adjust speed of sorting/inspecting line conveyor, inspect visually and remove damaged, blemished and rotten fruits

PC6. start conveyor or elevator and control speed to transfer sorted fruits and vegetables into peeler or corer machine (depending on the type of fruits and vegetables), startpeeler/corer machine and adjust the speed to remove the peel or core of fruits and vegetables (or)

PC7. dump measured quantity of lye chemical into tank of heated water to prepare lye solution for lye peeling, turn valves to admit steam to heat lye solution in tank, observe dials and adjust controls to regulate pressure and temperature

PC8. start conveyor and adjust speed to carry fruit and vegetables through lye peeling machine or load by hand, set and adjust timer for immersion time following sop, observe fruit and vegetable emerging from machine to ensure removal of skin or membrane, open valve to drain the excess lye solution,(or)

PC9. turn valves to introduce steam and adjust controls to maintain pressure for steam peeling of fruits and vegetables, open valves of water spraying system to wash the peeled/ scalded fruits and vegetables

PC10. start conveyor to transfer fruits and vegetable to chopper/cutter/slicer machine to slice to specified size and shape following sop

PC11. turn valves, set controls, monitor gauges to fill water in the blanching machine, turn valves to allow steam and adjust gauges to regulate steam pressure, water temperature and blanching time for different types of fruits and vegetables following sop

PC12. start feed conveyor and control speed to feed fruits and vegetables to and from the blanching machine, examine blanched fruits and vegetables visually and through feel/texture to determine adequacy of softening

Prepare sugar/brine/other preserving solution for canning

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

PC13. open valve to admit required amount of water into steam jacketed kettle/tank, observe water gauge or designated mark for quantity of water filled

PC14. measure sugar/salt, water, juice etc following sop and transfer into the pre-mixing tank /container, pump or manually add into water in the kettle/tank to preparesugar/brine/other preserving solution, turn on mixer/agitator and control speed to mix ingredients

PC15. turn valves to admit steam into kettle/tank, and set required pressure, temperature and time to heat the solution following sop, observe pressure and temperature gauge, and regulate steam to maintain temperature

PC16. check sugar/brine/other preserving solution using equipments like salinometer or refractometer to conform its specifications to standards, open valves or start pump to transfer sugar/brine/other preserving solution from mixing tank to storage or holding tanks for later use

Form, fill and seal cans

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

PC17. operate can reformer, flanger machines, seamer, can body beader and embossing machines manually to form cans

PC18. start can washer/sterilizer, can filling, can seamer machines and conveyor mechanisms to verify its working and performance

PC19. feed flattened containers onto conveyor or forming machines to form cans, press button to activate machine-lift that raises stacked cans and transfer them onto mechanical conveyor (in mechanical units), observe passing cans and remove defective/damaged cans from conveyor and discard following sop

PC20. set controls like temperature, steam pressure, conveyor speed and start machine that automatically feed empty cans onto conveyors leading to washing, filling and seaming machines

PC21. set fruit and vegetable filling machine for filling quantity, control speed of filling line conveyor that carries blanched fruits and vegetables, and start machine to fill measured quantity of fruits and vegetables into the can

PC22. check the weight of the filled cans periodically to ensure its conformance to standards

PC23. load fruit/vegetable filled cans onto liquid filling conveyor or start the conveyor that carries containers under liquid dispensing nozzles for filling sugar/ brine/other preserving solution

PC24. turn valves of the liquid filling machine and adjust controls to fill measured quantity of sugar/ brine/other preserving solution, observe filling operation and adjust flow of solution to optimum volume

PC25. start steaming line conveyor and control the speed to allow filled cans to pass through steaming chamber/tunnel (for products that cannot be preheated before filling)

PC26. verify gauges and adjust controls to maintain pressure and temperature or monitor and control plc of the steaming chamber/tunnel

PC27. adjust knobs to set temperature, pressure and time to increase temperature of the contents in the can to expel gases (or create vacuum) from the can before sealing

PC28. load lids in the can seaming machine, monitor can seaming operation to ensure the positioning of the lid on the can and crimping of lid to the can creating double seam

PC29. observe cans leaving machines to detect defects, such as overfilled cans or misaligned lids), check theweight of the filled cans, sample sealed cans and transfer to lab for quality analysis to ensure conformance of canned product to quality standards

Sterlize, cool,pack and store canned product

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

PC30. load the canned product manually in metal baskets, start motor to lower the basket with cans into hot water tank, adjust burner or allow steam to pass through tank to heat water continuously to sterilize can to specified temperature and time, mechanically lift basket with sterilized cans from hot water tank and place in cold water tank, open valves to circulate cold water in tanks to cool cans, dry cans manually (or)

PC31. load the canned product into the retort manually or mechanically through push trucks or pressing buttons to start conveyor to load canned foods into retort, close retort door or lid and turn wheels or moves levers to seal chamber

PC32. set process parameters like pressure, temperature, sterilization time etc in the retort following sop, turns valvesto admit steam into retort, observe dials and gauges and adjust controls to maintain process parameters,after sterilization time turn valves to release steam and allow cool water into chamber to prevent overcooking

PC33. open retort and move canned product to the cooling line conveyor, open valves of water spraying system and adjust pressure to spray cold water on cans passing though cooling line conveyor

PC34. set drying temperature, air flow etc of drying tunnel, start conveyor and control speed in order to allow cooled cans to pass through drying line conveyor to dry water on cooled cans

PC35. load labels in the packaging machine, set date coding machine for date code like batch number, date of manufacture, date of expiry etc and start machine to label cans

PC36. check sample canned product and transfer to quality lab for analysis and to ensure its conformance to quality standards

PC37. pack labeled cans into cartons and transfer to storage area manually or mechanically and maintain storageconditions by following SOP

PC38. report discrepancies/concerns to department supervisor for immediate action

Post production cleaning and regular maintenance of equipments

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

PC39. clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers

PC40. attend minor repairs/faults of all machines (if any)

PC41. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the SOP or following suppliers instructions/manuals

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organization standards, process standards and procedures followed in the organisation

KU2. types of products produced by the organisation

KU3. code of business conduct
KU4. dress code to be followed
KU5. job responsibilities/duties and standard operating procedures
KU6. internal processes like procurement, store management, inventory management, quality management and key contact points for query resolution
KU7. provision of wages, working hours and accident compensation as per organisation policy
KU8. food safety and hygiene standards followed
KU9. types and varieties of raw materials (various fruits and vegetables)
KU10. production process, process parameters and formulation for production of various canned products
KU11. types of machineries used in processing and machineries used in the organisation
KU12. handling all processing machineries
KU13. maintenance of machineries, equipments and tools
KU14. basic mathematics
KU15. calculation of raw material to yield of finished product
KU16. canning process and parameters, handling canning machineries
KU17. procedures for disposal of waste from agricultural produce
KU18. quality parameters, basic food microbiology and quality assessment based on physical parameters
KU19. types and category of packaging materials, packaging machineries
KU20. storage procedures for raw materials, packaging materials and finished goods
KU21. cleaning procedures like clean-in-place (CIP) and clean-out-place (COP)
KU22. knowledge on sanitizers and disinfectants and its handling and storing methods
KU23. food laws and regulations on product, packaging and labelling
KU24. food safety and hygiene
KU25. good manufacturing practice (GMP)
KU26. hazard analysis and critical control point (HACCP)

Generic Skills (GS)

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

GS1. note the information communicated by the supervisor
GS2. note the raw materials used for production and the finished products produced
GS3. note the readings of the process parameters and provide necessary information to fill the process chart
GS4. note down observations (if any) related to the process
GS5. write information documents to internal departments/ internal teams
GS6. note down the data for online ERP or as per applicability in the organization
GS7. read and interpret the process required for producing various types of products
GS8. read and interpret and process flowchart for all products produced

GS9. read equipment manuals and process documents to understand the equipments operation and process requirement

GS10. read internal information documents sent by internal teams

GS11. discuss task lists, schedules and activities with the supervisor

GS12. effectively communicate with the team members

GS13. question the supervisor in order to understand the nature of the problem and to clarify queries

GS14. attentively listen and comprehend the information given by the speaker

GS15. communicate clearly with the supervisor and cross department teams on the issues faced during process

GS16. analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue

GS17. handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)

GS18. plan and organize the work order and jobs received from the supervisor

GS19. organize raw materials and packaging materials required for all products following the instruction provided by the supervisor

GS20. plan and prioritize the work based on the instructions received from the supervisor

GS21. plan to utilise time and equipment's effectively

GS22. organize all process/ equipment manuals so as to access information easily

GS23. support the supervisor in scheduling tasks for helper(s)

GS24. understand customer requirements and their priority and respond as per their needs

GS25. support supervisor in solving problems by detailing out problems

GS26. discuss the possible solutions with the supervisor for problem solving

GS27. apply domain information about maintenance Processes and technical knowledge about tools and equipment

GS28. use common sense and make judgments on day to day basis

GS29. use reasoning skills to identify and resolve basic problems

GS30. use intuition to detect any potential problems which could arise during operations

GS31. use acquired knowledge of the process for identifying and handling issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Wash fruits and vegetables for canning	3	7	-	-
PC1. receive fruits and vegetables from the supplier/vendor, check weight and check the quality through physical parameters such as appearance, colour, maturity, etc.	1.5	2.5	-	-
PC2. open valve or start pump to fill water in the washing tank and control water level, dump fruit and vegetables manually for washing or start ladder conveyor to carry fruits and vegetables into the washing tank, switch on the agitating or revolving screens to immerse each fruit and vegetable into the water	0.5	1.5	-	-
PC3. start ladder conveyor to transfer washed produce from washing tank to washing line conveyor, start conveyor and adjust speed	0.5	1.5	-	-
PC4. open valves of the high pressure spraying system for chlorinated water and fresh water, adjust pressure to spray water on fruits and vegetables to wash with chlorinated water and rinse with fresh water	0.5	1.5	-	-
Sort, peel, slice and blanch fruits and vegetables for canning	4	11	-	-
PC5. start and adjust speed of sorting/inspecting line conveyor, inspect visually and remove damaged, blemished and rotten fruits	0.5	1.5	-	-
PC6. start conveyor or elevator and control speed to transfer sorted fruits and vegetables into peeler or corer machine (depending on the type of fruits and vegetables), startpeeler/corer machine and adjust the speed to remove the peel or core of fruits and vegetables (or)	0.5	1.5	-	-
PC7. dump measured quantity of lye chemical into tank of heated water to prepare lye solution for lye peeling, turn valves to admit steam to heat lye solution in tank, observe dials and adjust controls to regulate pressure and temperature	0.5	1.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC8. start conveyor and adjust speed to carry fruit and vegetables through lye peeling machine or load by hand, set and adjust timer for immersion time following sop, observe fruit and vegetable emerging from machine to ensure removal of skin or membrane, open valve to drain the excess lye solution,(or)	0.5	1.5	-	-
PC9. turn valves to introduce steam and adjust controls to maintain pressure for steam peeling of fruits and vegetables, open valves of water spraying system to wash the peeled/ scalded fruits and vegetables	0.5	1.5	-	-
PC10. start conveyor to transfer fruits and vegetable to chopper/cutter/slicer machine to slice to specified size and shape following sop	0.5	0.5	-	-
PC11. turn valves, set controls, monitor gauges to fill water in the blanching machine, turn valves to allow steam and adjust gauges to regulate steam pressure, water temperature and blanching time for different types of fruits and vegetables following sop	0.5	1.5	-	-
PC12. start feed conveyor and control speed to feed fruits and vegetables to and from the blanching machine, examine blanched fruits and vegetables visually and through feel/texture to determine adequacy of softening	0.5	1.5	-	-
Prepare sugar/brine/other preserving solution for canning	**3.5**	**6.5**	**-**	**-**
PC13. open valve to admit required amount of water into steam jacketed kettle/tank, observe water gauge or designated mark for quantity of water filled	0.5	1.5	-	-
PC14. measure sugar/salt, water, juice etc following sop and transfer into the pre-mixing tank /container, pump or manually add into water in the kettle/tank to preparesugar/brine/other preserving solution, turn on mixer/agitator and control speed to mix ingredients	1	2	-	-
PC15. turn valves to admit steam into kettle/tank, and set required pressure, temperature and time to heat the solution following sop, observe pressure and temperature gauge, and regulate steam to maintain temperature	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC16. check sugar/brine/other preserving solution using equipments like salinometer or refractometer to conform its specifications to standards, open valves or start pump to transfer sugar/brine/other preserving solution from mixing tank to storage or holding tanks for later use	1	1	-	-
Form, fill and seal cans	13	22	-	-
PC17. operate can reformer, flanger machines, seamer, can body beader and embossing machines manually to form cans	0.5	1.5	-	-
PC18. start can washer/sterilizer, can filling, can seamer machines and conveyor mechanisms to verify its working and performance	0.5	0.5	-	-
PC19. feed flattened containers onto conveyor or forming machines to form cans, press button to activate machine-lift that raises stacked cans and transfer them onto mechanical conveyor (in mechanical units), observe passing cans and remove defective/damaged cans from conveyor and discard following sop	0.5	0.5	-	-
PC20. set controls like temperature, steam pressure, conveyor speed and start machine that automatically feed empty cans onto conveyors leading to washing, filling and seaming machines	1.5	2.5	-	-
PC21. set fruit and vegetable filling machine for filling quantity, control speed of filling line conveyor that carries blanched fruits and vegetables, and start machine to fill measured quantity of fruits and vegetables into the can	1.5	2.5	-	-
PC22. check the weight of the filled cans periodically to ensure its conformance to standards	0.5	0.5	-	-
PC23. load fruit/vegetable filled cans onto liquid filling conveyor or start the conveyor that carries containers under liquid dispensing nozzles for filling sugar/ brine/other preserving solution	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC24. turn valves of the liquid filling machine and adjust controls to fill measured quantity of sugar/ brine/other preserving solution, observe filling operation and adjust flow of solution to optimum volume	2	2	-	-
PC25. start steaming line conveyor and control the speed to allow filled cans to pass through steaming chamber/tunnel (for products that cannot be preheated before filling)	1	2	-	-
PC26. verify gauges and adjust controls to maintain pressure and temperature or monitor and control plc of the steaming chamber/tunnel	1	2	-	-
PC27. adjust knobs to set temperature, pressure and time to increase temperature of the contents in the can to expel gases (or create vacuum) from the can before sealing	1	2	-	-
PC28. load lids in the can seaming machine, monitor can seaming operation to ensure the positioning of the lid on the can and crimping of lid to the can creating double seam	1	2	-	-
PC29. observe cans leaving machines to detect defects, such as overfilled cans or misaligned lids), check theweight of the filled cans, sample sealed cans and transfer to lab for quality analysis to ensure conformance of canned product to quality standards	1	2	-	-
Sterlize, cool,pack and store canned product	**10**	**15**	**-**	**-**
PC30. load the canned product manually in metal baskets, start motor to lower the basket with cans into hot water tank, adjust burner or allow steam to pass through tank to heat water continuously to sterilize can to specified temperature and time, mechanically lift basket with sterilized cans from hot water tank and place in cold water tank, open valves to circulate cold water in tanks to cool cans, dry cans manually (or)	1	3	-	-
PC31. load the canned product into the retort manually or mechanically through push trucks or pressing buttons to start conveyor to load canned foods into retort, close retort door or lid and turn wheels or moves levers to seal chamber	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC32. set process parameters like pressure, temperature, sterilization time etc in the retort following sop, turns valvesto admit steam into retort, observe dials and gauges and adjust controls to maintain process parameters,after sterilization time turn valves to release steam and allow cool water into chamber to prevent overcooking	2	2	-	-
PC33. open retort and move canned product to the cooling line conveyor, open valves of water spraying system and adjust pressure to spray cold water on cans passing though cooling line conveyor	1	2	-	-
PC34. set drying temperature, air flow etc of drying tunnel, start conveyor and control speed in order to allow cooled cans to pass through drying line conveyor to dry water on cooled cans	1	2	-	-
PC35. load labels in the packaging machine, set date coding machine for date code like batch number, date of manufacture, date of expiry etc and start machine to label cans	1	1	-	-
PC36. check sample canned product and transfer to quality lab for analysis and to ensure its conformance to quality standards	1	1	-	-
PC37. pack labeled cans into cartons and transfer to storage area manually or mechanically and maintain storageconditions by following SOP	1	1	-	-
PC38. report discrepancies/concerns to department supervisor for immediate action	1	1	-	-
Post production cleaning and regular maintenance of equipments	**1.5**	**3.5**	**-**	**-**
PC39. clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers	0.5	1.5	-	-
PC40. attend minor repairs/faults of all machines (if any)	0.5	1.5	-	-
PC41. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the SOP or following suppliers instructions/manuals	0.5	0.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	35	65	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N0126
NOS Name	Can fruits and vegetables
Sector	Food Processing
Sub-Sector	Fruits and Vegetables
Occupation	Processing
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	29/06/2024
NSQC Clearance Date	30/09/2021

FIC/N0129: Sort and grade produce

Description

This OS unit is about sorting and grading of various agricultural produce manually and using various machineries.

Elements and Performance Criteria

Receive and wash produce

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

PC1. receive agricultural produce from the supplier/vendor, weigh the produce and check the quality through physical parameters such as appearance, colour, texture, maturity, etc.

PC2. pump water into the float tank (water tank) and control the water level for washing produce

PC3. measure specified quantity of chlorine and dose in water and prepare chlorinated water (if required) to destroy microbes

PC4. dump the produce in the float tank manually (for selected agricultural produce which can tolerate water treatment) to remove soil, pesticides, dirt, plant debris and rotting parts or start conveyor or ladder elevator and control speed, load the produce in the conveyor to transfer it to the float tank

PC5. start the conveyor that lift the produce from the float tank to the rolling conveyor for washing

PC6. open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on produce for thorough washing and to remove chlorine

PC7. control the speed of the drying line conveyor, set the air temperature and control air circulation, and allow washed produce to pass through the drying tunnel for drying or adjust controls to transfer produce to the brushing conveyor with brush rollers for wiping and to transfer the produce into different lanes of sorting tables

PC8. start the equipment with brushing rollers, adjust speed and dump produce that cannot tolerate water treatment for brushing and removing soil and dirt on the surface

Sort and grade produce

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

PC9. transfer the produce to the sorting table manually or control the speed of sorting line conveyor, inspect the produce in the sorting line/sorting table visually and remove the severely damaged, defective, deformed, rotting produce by hand and discard

PC10. start mechanical sorting machine with mesh screen for sorting produce based on size, dump produce in feed chute or open supply chute to feed material into machine; collect the sorted produce from the discharge outlet

PC11. operate the equipment that removes dry foliage attached to the bulb (in case of onion, garlic)

PC12. place spherical shaped produce on rings of known diameter to sort them by size, collect the produce that passes through the ring and falls into the containers placed below; replace filled container with empty ones

PC13. set control parameters of electronic colour sorter for sorting produce based on colour

PC14. in continuous sorting and grading line, control the speed of the different lanes of sorting line conveyors that diverge into single line to transfer produce to the electronic colour sorter for sorting produce based on colour

PC15. control speed of the conveyor to diverge into number of lanes (as required by the organisation) for uniform grading of produce based on weight and size

PC16. control the speed of the grading lanes conveyors with mesh screens or diverging belts or rollers with increased spaces between them (in this machine control the speed of rollers) to sort produce based on size (diameter and length)

PC17. control the speed of the grading lane conveyors with weight sensitive trays to sort produce based on weight

PC18. place baskets, tubs, or crates below discharge outlets of each machine and lane, remove full containers from discharge outlets and replace them with empty ones

PC19. report any malfunction or discrepancies to the supervisor and implement the suggested corrective action immediately

Package produce

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

PC20. transfer the containers with sorted and graded produce to the packaging area

PC21. place specified count of sorted and graded produce manually in plastic moulded trays, thermoformed pvc trays, etc., place label on trays and pass though shrink wrap machine to wrap with shrinkable plastic films (if required)

PC22. wrap individual produce in foam net and place in moulded trays and place packed trays in carton

PC23. weigh sorted and graded produce such as onions, potatoes, sweet potatoes, etc. and pack in mesh bags of various size either manually or mechanically

PC24. feed the sorted and graded produce in the hopper of automatic packing machine, load the packaging materials in the machine, set machine for packaging weight, batch code, date of packing, date of expiry, etc. and start machine to pack specified quantity; collect packed produce from the packaging conveyor for further packaging

PC25. form ventilated cartons, place protective material such as paper, straw, etc. in carton, place packed trays in the carton and seal, strap carton if required and weigh the packed cartons

PC26. place cartons on pallets, operate shrink wrap machine to shrink wrap palletized cartons for bulk packaging

PC27. transfer to packed cartons/ pallets to storage area and store maintaining storage parameters following SOP

Carry out post production cleaning and regular maintenance of equipments

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

PC28. clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers

PC29. attend minor repairs/faults of all machines (if any)

PC30. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organization standards, process standards and procedures followed in the organisation
KU2. types of products produced by the organisation
KU3. code of business conduct
KU4. dress code to be followed
KU5. job responsibilities/duties and standard operating procedures
KU6. internal processes such as procurement, store management, inventory management, quality management and key contact points for query resolution
KU7. provision of wages, working hours as per organisation policy
KU8. food safety and hygiene standards followed
KU9. types of raw materials (various fruits and vegetables), variety and quality of produce
KU10. washing process and various chemicals used for washing produce
KU11. types of machineries used and handling all machineries
KU12. maintenance of machineries
KU13. types of rejects for each produce and methods to identify rejects
KU14. procedures to handle rejects
KU15. food standards for grades of all agricultural produce handled
KU16. quality parameters, basic food microbiology and quality assessment based on physical parameters
KU17. types and category of packaging materials, packaging machineries
KU18. storage procedures for incoming produce, packaging materials and packed produce
KU19. types of sanitizers and disinfectants and its handling and storing methods
KU20. CIP and COP methods and procedures
KU21. basic mathematics
KU22. food laws and regulations on product, packaging and labelling
KU23. food safety and hygiene
KU24. GMP
KU25. HACCP

Generic Skills (GS)

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

GS1. note the information communicated by the supervisor
GS2. note the raw materials used for production and the finished products produced
GS3. note the readings of the process parameters and provide necessary information to fill the process chart
GS4. note down observations (if any) related to the process
GS5. write information documents to internal departments/ internal teams
GS6. note down the data for online ERP or as per applicability in the organization
GS7. read and interpret the process required for producing various types of products
GS8. read and interpret and process flowchart for all products produced

GS9. read equipment manuals and process documents to understand the equipments operation and process requirement

GS10. read internal information documents sent by internal teams

GS11. discuss task lists, schedules and activities with the supervisor

GS12. effectively communicate with the team members

GS13. question the supervisor in order to understand the nature of the problem and to clarify queries

GS14. attentively listen and comprehend the information given by the speaker

GS15. communicate clearly with the supervisor and cross department teams on the issues faced during process

GS16. analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue

GS17. handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)

GS18. plan and organize the work order and jobs received from the supervisor

GS19. organize raw materials and packaging materials required for all products following the instruction provided by the supervisor

GS20. plan and prioritize the work based on the instructions received from the supervisor

GS21. plan to utilise time and equipment's effectively

GS22. organize all process/ equipment manuals so as to access information easily

GS23. support the supervisor in scheduling tasks for helper(s)

GS24. understand customer requirements and their priority and respond as per their needs

GS25. supervisor in solving problems by detailing out problems

GS26. the possible solutions with the supervisor for problem solving

GS27. apply domain information about maintenance processes and technical knowledge about tools and equipment

GS28. use common sense and make judgments on day to day basis

GS29. use reasoning skills to identify and resolve basic problems

GS30. use intuition to detect any potential problems which could arise during operations

GS31. use acquired knowledge of the process for identifying and handling issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Receive and wash produce	10.5	14.5	-	-
PC1. receive agricultural produce from the supplier/vendor, weigh the produce and check the quality through physical parameters such as appearance, colour, texture, maturity, etc.	1.5	1.5	-	-
PC2. pump water into the float tank (water tank) and control the water level for washing produce	0.5	0.5	-	-
PC3. measure specified quantity of chlorine and dose in water and prepare chlorinated water (if required) to destroy microbes	0.5	0.5	-	-
PC4. dump the produce in the float tank manually (for selected agricultural produce which can tolerate water treatment) to remove soil, pesticides, dirt, plant debris and rotting parts or start conveyor or ladder elevator and control speed, load the produce in the conveyor to transfer it to the float tank	1	1	-	-
PC5. start the conveyor that lift the produce from the float tank to the rolling conveyor for washing	0.5	0.5	-	-
PC6. open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on produce for thorough washing and to remove chlorine	1	2	-	-
PC7. control the speed of the drying line conveyor, set the air temperature and control air circulation, and allow washed produce to pass through the drying tunnel for drying or adjust controls to transfer produce to the brushing conveyor with brush rollers for wiping and to transfer the produce into different lanes of sorting tables	3.5	5.5	-	-
PC8. start the equipment with brushing rollers, adjust speed and dump produce that cannot tolerate water treatment for brushing and removing soil and dirt on the surface	2	3	-	-
Sort and grade produce	13.5	26.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC9. transfer the produce to the sorting table manually or control the speed of sorting line conveyor, inspect the produce in the sorting line/sorting table visually and remove the severely damaged, defective, deformed, rotting produce by hand and discard	1	3	-	-
PC10. start mechanical sorting machine with mesh screen for sorting produce based on size, dump produce in feed chute or open supply chute to feed material into machine; collect the sorted produce from the discharge outlet	1	3	-	-
PC11. operate the equipment that removes dry foliage attached to the bulb (in case of onion, garlic)	1	2	-	-
PC12. place spherical shaped produce on rings of known diameter to sort them by size, collect the produce that passes through the ring and falls into the containers placed below; replace filled container with empty ones	1	2	-	-
PC13. set control parameters of electronic colour sorter for sorting produce based on colour	1.5	1.5	-	-
PC14. in continuous sorting and grading line, control the speed of the different lanes of sorting line conveyors that diverge into single line to transfer produce to the electronic colour sorter for sorting produce based on colour	1	3	-	-
PC15. control speed of the conveyor to diverge into number of lanes (as required by the organisation) for uniform grading of produce based on weight and size	1	3	-	-
PC16. control the speed of the grading lanes conveyors with mesh screens or diverging belts or rollers with increased spaces between them (in this machine control the speed of rollers) to sort produce based on size (diameter and length)	2	3	-	-
PC17. control the speed of the grading lane conveyors with weight sensitive trays to sort produce based on weight	2	3	-	-
PC18. place baskets, tubs, or crates below discharge outlets of each machine and lane, remove full containers from discharge outlets and replace them with empty ones	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC19. report any malfunction or discrepancies to the supervisor and implement the suggested corrective action immediately	1	1	-	-
Package produce	7.5	17.5	-	-
PC20. transfer the containers with sorted and graded produce to the packaging area	0.5	0.5	-	-
PC21. place specified count of sorted and graded produce manually in plastic moulded trays, thermoformed pvc trays, etc., place label on trays and pass though shrink wrap machine to wrap with shrinkable plastic films (if required)	1	3	-	-
PC22. wrap individual produce in foam net and place in moulded trays and place packed trays in carton	1	2	-	-
PC23. weigh sorted and graded produce such as onions, potatoes, sweet potatoes, etc. and pack in mesh bags of various size either manually or mechanically	1	2	-	-
PC24. feed the sorted and graded produce in the hopper of automatic packing machine, load the packaging materials in the machine, set machine for packaging weight, batch code, date of packing, date of expiry, etc. and start machine to pack specified quantity; collect packed produce from the packaging conveyor for further packaging	1	3	-	-
PC25. form ventilated cartons, place protective material such as paper, straw, etc. in carton, place packed trays in the carton and seal, strap carton if required and weigh the packed cartons	1	3	-	-
PC26. place cartons on pallets, operate shrink wrap machine to shrink wrap palletized cartons for bulk packaging	1	3	-	-
PC27. transfer to packed cartons/ pallets to storage area and store maintaining storage parameters following SOP	1	1	-	-
Carry out post production cleaning and regular maintenance of equipments	3.5	6.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC28. clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers	1	3	-	-
PC29. attend minor repairs/faults of all machines (if any)	1	3	-	-
PC30. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals	1.5	0.5	-	-
NOS Total	**35**	**65**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N0129
NOS Name	Sort and grade produce
Sector	Food Processing
Sub-Sector	Fruits and Vegetables
Occupation	Processing
NSQF Level	3
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	29/06/2024
NSQC Clearance Date	30/09/2021

FIC/N5007: Produce baked products in artisan bakeries and patisseries

Description

This OS unit is about producing various baked products using required equipments and acquired skills as per the defined SOPs, in artisan bakeries and patisseries.

Elements and Performance Criteria

Mix ingredients

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

PC1. check the quality of ingredients through physical parameters such as appearance, colour, odour, texture, etc. for its conformance to organizationstandards

PC2. weigh and accurately measure all ingredients as per formulation and transfer the weighed raw materials to the working bench/ mixing table

PC3. cream the shortenings till they reach the required consistency

PC4. knead/mix the ingredient to prepare dough/batter of required consistency

PC5. check the quality of the dough/batter for its conformance to the defined SOP's

Fermentation andproofing dough

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

PC6. transfer the dough into a container and allow it to stand for specified time for fermentation and periodically check the consistency and texture todetermine the level of fermentation

PC7. dust the table with flour and transfer the dough from the container to the table dusted with flour

PC8. stretch and fold the fermented dough for degassing, brush the dough surface to remove excess flour and transfer dough back to the dough container for continued fermentation

PC9. repeat stretch and fold four to five times to obtain desired consistency

PC10. cut the dough and weigh the quantity required for making the product and mould dough into loaves or form to desired shape

PC11. sprinkle topping such as spices, cereals, seeds, etc. for making special rolls or breads and place the loaves or shaped dough in the bread box/mould orbaking pans

PC12. check the water level in the proof box and set to the required time, temperature and humidity and load the proof box with the bread box/mould filled with dough, following production sequence

PC13. monitor proof box parameters such as temperature/humidity during proofing process, monitor raising of dough in the proof box and remove the bread mould out of proof box after dough has rise to specified height

Roll, shape, cut andmould

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

PC14. sprinkle flour on dough and work bench to prevent dough from sticking, and roll dough to desired thickness with rolling pin to make cookies andbiscuits

PC15. cut the dough to desired shape using cookie cutter, spread or sprinkle toppings on the shaped dough

PC16. grease or flour the baking pans and place the shaped dough in it

PC17. pour the measured quantity of batter(cake batter) into the moulds of various shape

Bake products

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

PC18. start the oven and set the temperature for preheating

PC19. set the oven temperature and baking time for the product referring to the process parameter chart, load the filled baking pans in the oven and observe spacing between the pans

PC20. monitor oven parameters such as temperature and time during baking process

PC21. observe colour of baking product to detect over baking and to achieve finished product of uniform quality

PC22. unload the baked products from the oven and check the quality of the product through physical parameters such as colour, size, appearance, texture, aroma, etc. and ensure that the product meets the required standards

PC23. unload the pans/trays immediately after removing from the oven and place baked product on the cooling racks for cooling, and stack the emptied baking pans in the designated area

PC24. adjust or reset controls to load the next batch/ product in the oven

PC25. weigh the baked product to check the yield (from raw material to finished product)

PC26. slice, pack, label and store the product following the product requirement /defined SOPs

PC27. report discrepancies/concerns in each stage of production to department supervisor for immediate action

Design and developspecialty bakeryproducts

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

PC28. create designs based on concepts of colour, shape, texture, pattern, form, etc. or check designs from production order for developing specialty bakeryproducts such as wedding cakes, celebration cakes, etc.

PC29. organize tools and equipments required for filling, trimming, masking, covering, decoration and storage of specialty bakery products

PC30. check the quality of finishing materials such as icings, fondants, glazes, chocolate, fruits, grains , nuts, etc. required for preparation of specialty bakery products

PC31. cut and shape the cake for decoration

PC32. prepare icings, fondants, colours, fruits, etc. required according to the design

PC33. apply glazes, icings, or other toppings to baked goods using spatulas, brushes, piping bags, etc.

PC34. check the decorated product for its conformance to customer order or organization standards

PC35. check and maintain cleanliness and required storage conditions for the product

PC36. set and maintain temperature of the refrigeration system for storage of finished product

PC37. store the specialty bakery products following the product requirement and defined SOP's

Post productioncleaning and regular

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

PC38. clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers

PC39. attend minor repairs/faults of all machines (if any)

Maintenance ofequipments

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

PC40. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organization standards, process standards and procedures followed in the organization
KU2. types of products produced by the organization
KU3. code of business conduct
KU4. dress code to be followed
KU5. job responsibilities/duties and standard operating procedures
KU6. internal processes such as procurement, store management, inventory management, quality management and key contact points for query resolution
KU7. provision of wages, working hours as per organisation policy
KU8. food safety and hygiene standards followed
KU9. types of raw materials, ingredients and finishing materials required formaking various baked products
KU10. production process, process parameters and formulation for all types of various baked products
KU11. types of machineries used for baking various products and machineries used in the organization
KU12. handling and maintenance of baking equipments
KU13. hand in machine safety
KU14. process parameters and machine parameters for all products handled
KU15. basic mathematics
KU16. quality parameters, quality standards to be maintained and quality assessment based on physical parameters
KU17. types of packaging materials for various type of products
KU18. types of chemicals, materials, tools and equipment required for cleaning and maintenance
KU19. clean-in-place and clean-out-of-place methods and procedures
KU20. methods to clean and disinfect equipments, tools and work area
KU21. food safety and hygiene
KU22. knowledge on food safety standards and regulations (as per FSSAI)
KU23. GMP
KU24. HACCP

Generic Skills (GS)

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

GS1. note the information communicated by the supervisor

GS2. note the raw materials used for production and the finished products produced

GS3. note the readings of the process parameters and provide necessary information to fill the process chart

GS4. note down observations (if any) related to the process

GS5. write information documents to internal departments/ internal teams

GS6. note down the data for ERP or as required by the organization

GS7. read and interpret the process required for producing various types of products

GS8. read and interpret and process flowchart for all products produced

GS9. read equipment manuals and process documents to understand the equipment operation and process requirement

GS10. read internal information documents sent by internal teams

GS11. discuss task lists, schedules and activities with the supervisor

GS12. effectively communicate with the team members

GS13. question the supervisor in order to understand the nature of the problem and to clarify queries

GS14. attentively listen and comprehend the information given by the speaker

GS15. communicate clearly with the supervisor and cross department team on the issues faced

GS16. analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue

GS17. handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)

GS18. plan and organize the work order and jobs received from the supervisor

GS19. organize raw materials and packaging materials required for all products following the instruction provided by the supervisor

GS20. plan and prioritize the work based on the instructions received from the supervisor

GS21. plan to utilise time and equipment's effectively

GS22. organize all process/ equipment manuals so as to access information easily

GS23. support the supervisor in scheduling tasks for helper(s)

GS24. understand customer requirements and their priority and respond as per their needs

GS25. support supervisor in solving problems by detailing out problems

GS26. discuss the possible solutions with the supervisor for problem solving

GS27. apply domain information about maintenance processes and technical knowledge about tools and equipment

GS28. use common sense and make judgments on day to day basis

GS29. use reasoning skills to identify and resolve basic problems

GS30. use intuition to detect any potential problems which could arise during operations

GS31. use acquired knowledge of the process for identifying and handling issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Mix ingredients	8.5	13.5	-	-
PC1. check the quality of ingredients through physical parameters such as appearance, colour, odour, texture, etc. for its conformance to organizationstandards	2	3	-	-
PC2. weigh and accurately measure all ingredients as per formulation and transfer the weighed raw materials to the working bench/ mixing table	2	3	-	-
PC3. cream the shortenings till they reach the required consistency	0.5	1.5	-	-
PC4. knead/mix the ingredient to prepare dough/batter of required consistency	2	3	-	-
PC5. check the quality of the dough/batter for its conformance to the defined SOP's	2	3	-	-
Fermentation andproofing dough	7	13	-	-
PC6. transfer the dough into a container and allow it to stand for specified time for fermentation and periodically check the consistency and texture todetermine the level of fermentation	0.5	1.5	-	-
PC7. dust the table with flour and transfer the dough from the container to the table dusted with flour	2	3	-	-
PC8. stretch and fold the fermented dough for degassing, brush the dough surface to remove excess flour and transfer dough back to the dough container for continued fermentation	0.5	1.5	-	-
PC9. repeat stretch and fold four to five times to obtain desired consistency	0.5	1.5	-	-
PC10. cut the dough and weigh the quantity required for making the product and mould dough into loaves or form to desired shape	0.5	1.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. sprinkle topping such as spices, cereals, seeds, etc. for making special rolls or breads and place the loaves or shaped dough in the bread box/mould orbaking pans	1	2	-	-
PC12. check the water level in the proof box and set to the required time, temperature and humidity and load the proof box with the bread box/mould filled with dough, following production sequence	1	1	-	-
PC13. monitor proof box parameters such as temperature/humidity during proofing process, monitor raising of dough in the proof box and remove the bread mould out of proof box after dough has rise to specified height	1	1	-	-
Roll, shape, cut andmould	**2**	**5**	**-**	**-**
PC14. sprinkle flour on dough and work bench to prevent dough from sticking, and roll dough to desired thickness with rolling pin to make cookies andbiscuits	0.5	1.5	-	-
PC15. cut the dough to desired shape using cookie cutter, spread or sprinkle toppings on the shaped dough	0.5	0.5	-	-
PC16. grease or flour the baking pans and place the shaped dough in it	0.5	1.5	-	-
PC17. pour the measured quantity of batter(cake batter) into the moulds of various shape	0.5	1.5	-	-
Bake products	**7.5**	**12.5**	**-**	**-**
PC18. start the oven and set the temperature for preheating	0.5	1.5	-	-
PC19. set the oven temperature and baking time for the product referring to the process parameter chart, load the filled baking pans in the oven and observe spacing between the pans	0.5	1.5	-	-
PC20. monitor oven parameters such as temperature and time during baking process	0.5	1.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. observe colour of baking product to detect over baking and to achieve finished product of uniform quality	0.5	1.5	-	-
PC22. unload the baked products from the oven and check the quality of the product through physical parameters such as colour, size, appearance, texture, aroma, etc. and ensure that the product meets the required standards	0.5	1.5	-	-
PC23. unload the pans/trays immediately after removing from the oven and place baked product on the cooling racks for cooling, and stack the emptied baking pans in the designated area	1	1	-	-
PC24. adjust or reset controls to load the next batch/ product in the oven	1	1	-	-
PC25. weigh the baked product to check the yield (from raw material to finished product)	1	1	-	-
PC26. slice, pack, label and store the product following the product requirement /defined SOPs	1	1	-	-
PC27. report discrepancies/concerns in each stage of production to department supervisor for immediate action	1	1	-	-
Design and developspecialty bakeryproducts	**7.5**	**15.5**	**-**	**-**
PC28. create designs based on concepts of colour, shape, texture, pattern, form, etc. or check designs from production order for developing specialty bakeryproducts such as wedding cakes, celebration cakes, etc.	1	1	-	-
PC29. organize tools and equipments required for filling, trimming, masking, covering, decoration and storage of specialty bakery products	0.5	1.5	-	-
PC30. check the quality of finishing materials such as icings, fondants, glazes, chocolate, fruits, grains , nuts, etc. required for preparation of specialty bakery products	0.5	1.5	-	-
PC31. cut and shape the cake for decoration	0.5	1.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC32. prepare icings, fondants, colours, fruits, etc. required according to the design	1	2	-	-
PC33. apply glazes, icings, or other toppings to baked goods using spatulas, brushes, piping bags, etc.	1	2	-	-
PC34. check the decorated product for its conformance to customer order or organization standards	0.5	1.5	-	-
PC35. check and maintain cleanliness and required storage conditions for the product	0.5	0.5	-	-
PC36. set and maintain temperature of the refrigeration system for storage of finished product	1	2	-	-
PC37. store the specialty bakery products following the product requirement and defined SOP's	1	2	-	-
Post productioncleaning and regular	**1.5**	**3.5**	**-**	**-**
PC38. clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers	1	2	-	-
PC39. attend minor repairs/faults of all machines (if any)	0.5	1.5	-	-
Maintenance ofequipments	**1**	**2**	**-**	**-**
PC40. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals	1	2	-	-
NOS Total	**35**	**65**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N5007
NOS Name	Produce baked products in artisan bakeries and patisseries
Sector	Food Processing
Sub-Sector	Bread and Bakery
Occupation	Processing
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	29/06/2024
NSQC Clearance Date	30/09/2021

FIC/N8509: Produce spice products

Description

This OS unit is about producing spice products such as cleaned and sterilized spices, spice powders and curry powders using various machineries as per the specifications and standards of the organization.

Elements and Performance Criteria

Receive and store raw materials

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

PC1. receive raw materials (various types of spices) from suppliers/vendors and check weight

PC2. check quality of raw materials visually for impurities (stone, foreign matter, infestation, etc)

PC3. sample raw material and transfer to quality lab for analysis

PC4. store raw materials maintaining storage parameters until processing

PC5. organize for pest control and fumigation of raw materials, if stored for long time

Clean spices

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

PC6. read and understand work order from the supervisor

PC7. organize raw materials (various spices) for the batch from internal/external warehouse

PC8. fix/change screens of the cleaning machines, set controls parameters of the cleaning machines

PC9. place container near the discharge outlet of the cleaning machines

PC10. dump raw material into feed hopper of the cleaning machineries or cleaning line conveyor to remove metal, dust, stone, foreign materials, spices of uneven shape and size

PC11. start cleaning machine, monitor cleaning process and adjust control if required

PC12. remove the filled container and replace with empty container, transfer the cleaned raw materials to processing area for further processing

PC13. dispose waste following organization standards

Produce dried and sterilized spices

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

PC14. load cleaned spices in trays, place trays in cart (or) set controls to transfer cleaned spices into the drying line conveyor

PC15. set control parameters of dryer or drying line conveyor, load trays/ push tray cart into the drier (or) start conveyor to allow spice to pass through drying line

PC16. remove trays from the drier after specified time and allow to cool and transfer to packaging area or for further processing

PC17. set controls of stem cutting and spice cutting machine, start machine and feed cleaned spice, collect stem cut spices (such as chilli) and cut spices (chilli, turmeric etc) from the discharge outlet

PC18. set controls of stem sterilization line, feed spices on conveyor to come in contact with steam for specified (in case of preparing steam sterilized spices)

PC19. transfer sterilized spices to drier conveyor, set controls to dry sterilized spices, transfer dried spices to packaging area or transfer for further processing

Produce spice powders

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

PC20. set control parameters of spice roasting machine, start machine, weigh cleaned spices and transfer into the roaster for roasting to reduce moisture

PC21. fix screen in the spice mill (plate mill/hammer mill/pin mill, roller mill), adjust clearance between plates or rollers, set controls parameters for milling

PC22. start spice mill, dump cleaned/sterilized spices in the feed hopper of the mill, open chute and control the quantity of spice entering mill for grinding to produce spice flakes/ spice powders

PC23. collect the milled spices in container and allow to stand for cooling

PC24. fix screens in the sifting/sieving machine, set control parameters and start machine, transfer spice powder into the sieving machine to sift and obtain spice powder of uniform fineness

PC25. collect spice flakes/spice powder in container and transfer to packaging area (or) open chute to transfer ground spice to the packaging line

PC26. in continuous processing line, set controls of pneumatic system, cleaning machines, spice cutting machine, stem sterilization line, spice milling machine, packaging machines, dump raw material into spice processing line, monitor process, control and maintain process parameters, check the product at each stage of processing, sample and transfer to quality lab

Produce curry powders

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

PC27. weigh various roasted spices for curry powder following the formulation

PC28. set controls of blending machine, start machine to blend spice, stop blender, tilt to transfer blended spices into container

PC29. fix/change screens in spice mill, adjust clearance between plates and start machine, dump blended spices in the feed hopper and open chute to allow spices into spice mill, start mill to grind mixed spices to obtain curry powder

PC30. collect curry powder in container and allow to stand for specified time to cool product

PC31. transfer cooled curry powder into blending machine, set controls and star machine to uniformly mix the curry powder

PC32. fix screens, set controls of sifter/sieving machine, transfer curry powder on sieving machine to sieve and obtain product of uniform fineness

PC33. open chute to allow curry powder into the packaging line (or) collect curry powder in container and transfer to packaging area

Pack and sterilize spice products

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

PC34. load packaging materials and labels in packaging machine, set filling quantity and labeling details, transfer product into the feed hopper of packaging machine, start machine to pack finished products

PC35. sample products produced (cleaned spices, roasted spices, steam sterilized spices, spice flakes, spice powder, curry powder etc) from production line and packed product, and transfer to quality lab for analysis

PC36. load packed spice products in the radiation room, expose spices to gamma radiation for specified time to remove pathogens (or)

PC37. load packed spice products in ethylene treatment chamber, close chamber door, evacuate air, release ethylene gas into the chamber, monitor and control parameter

PC38. evacuate remaining ethylene gas from chamber after specified time, open chamber, remove sterilized spice products

PC39. place the packed sterilized products in cartons and seal, transfer to storage area and store maintaining storage conditions following SOP

Post production cleaning and regular maintenance of equipments

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

PC40. clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers

PC41. attend minor repairs/faults of all machines (if any)

PC42. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the SOP or following suppliers instructions/manuals

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organization standards, process standards and procedures followed in the organisation

KU2. types of products produced by the organisation

KU3. code of business conduct

KU4. dress code to be followed

KU5. job responsibilities/duties and standard operating procedures relavant to production process

KU6. internal processes like procurement, store management, inventory management, quality management and key contact points for queryresolution

KU7. provision of wages, working hours, accident compensation as per organisation policy

KU8. food safety and hygiene standards followed

KU9. types and varieties of raw materials (various spices) and products obtained from each raw materials

KU10. various methods of cleaning, milling and sterilization of spices

KU11. production process, process parameters and product formulation for various products produced

KU12. types of machineries used in processing and machineries used in the organisation

KU13. handling and maintenance of all machineries, equipments and tools

KU14. basic mathematics

KU15. quality parameters, basic food microbiology and quality assessment based on physical parameters

KU16. types and category of packaging materials, packaging machineries

KU17. storage procedures for raw materials, packaging materials and finished goods

KU18. methods for disposal of waste

KU19. cleaning procedures such as CIP and COP

KU20. sanitizers and disinfectants and their handling and storing methods

KU21. food laws and regulations on product, packaging and labelling

KU22. GMP, HACCP

Generic Skills (GS)

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

GS1. note the information communicated by the supervisor
GS2. note the raw materials used for production and the finished products produced
GS3. note the readings of the process parameters and provide necessary information to fill the process chart
GS4. note down observations (if any) related to the process
GS5. write information documents to internal departments/ internal teams
GS6. note down the data for online ERP or as per applicability in the organization
GS7. read and interpret the process required for producing various types of products
GS8. read and interpret and process flowchart for all products produced
GS9. read equipment manuals and process documents to understand the equipments operation and process requirement
GS10. read internal information documents sent by internal teams
GS11. discuss task lists, schedules and activities with the supervisor
GS12. effectively communicate with the team members
GS13. question the supervisor in order to understand the nature of the problem and to clarify queries
GS14. attentively listen and comprehend the information given by the speaker
GS15. communicate clearly with the supervisor and cross department teams on the issues faced during process
GS16. analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue
GS17. handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)
GS18. plan and organize the work order and jobs received from the supervisor
GS19. organize raw materials and packaging materials required for all products following the instruction provided by the supervisor
GS20. plan and prioritize the work based on the instructions received from the supervisor
GS21. plan to utilise time and equipment's effectively
GS22. organize all process/ equipment manuals so as to access information easily
GS23. support the supervisor in scheduling tasks for helper(s)
GS24. understand customer requirements and their priority and respond as per their needs
GS25. support supervisor in solving problems by detailing out problems
GS26. discuss the possible solutions with the supervisor for problem solving
GS27. apply domain information about maintenance Processes and technical knowledge about tools and equipment
GS28. use common sense and make judgments on day to day basis

GS29. use reasoning skills to identify and resolve basic problems

GS30. use intuition to detect any potential problems which could arise during operations

GS31. use acquired knowledge of the process for identifying and handling issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Receive and store raw materials	3.5	6.5	-	-
PC1. receive raw materials (various types of spices) from suppliers/vendors and check weight	0.5	1.5	-	-
PC2. check quality of raw materials visually for impurities (stone, foreign matter, infestation, etc)	1	1	-	-
PC3. sample raw material and transfer to quality lab for analysis	0.5	1.5	-	-
PC4. store raw materials maintaining storage parameters until processing	0.5	1.5	-	-
PC5. organize for pest control and fumigation of raw materials, if stored for long time	1	1	-	-
Clean spices	5	10	-	-
PC6. read and understand work order from the supervisor	0.5	0.5	-	-
PC7. organize raw materials (various spices) for the batch from internal/external warehouse	0.5	0.5	-	-
PC8. fix/change screens of the cleaning machines, set controls parameters of the cleaning machines	1	1	-	-
PC9. place container near the discharge outlet of the cleaning machines	0.5	1.5	-	-
PC10. dump raw material into feed hopper of the cleaning machineries or cleaning line conveyor to remove metal, dust, stone, foreign materials, spices of uneven shape and size	1	2	-	-
PC11. start cleaning machine, monitor cleaning process and adjust control if required	0.5	1.5	-	-
PC12. remove the filled container and replace with empty container, transfer the cleaned raw materials to processing area for further processing	0.5	1.5	-	-
PC13. dispose waste following organization standards	0.5	1.5	-	-
Produce dried and sterilized spices	8	12	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. load cleaned spices in trays, place trays in cart (or) set controls to transfer cleaned spices into the drying line conveyor	1	2	-	-
PC15. set control parameters of dryer or drying line conveyor, load trays/ push tray cart into the drier (or) start conveyor to allow spice to pass through drying line	2	2	-	-
PC16. remove trays from the drier after specified time and allow to cool and transfer to packaging area or for further processing	1	2	-	-
PC17. set controls of stem cutting and spice cutting machine, start machine and feed cleaned spice, collect stem cut spices (such as chilli) and cut spices (chilli, turmeric etc) from the discharge outlet	1	2	-	-
PC18. set controls of stem sterilization line, feed spices on conveyor to come in contact with steam for specified (in case of preparing steam sterilized spices)	2	2	-	-
PC19. transfer sterilized spices to drier conveyor, set controls to dry sterilized spices, transfer dried spices to packaging area or transfer for further processing	1	2	-	-
Produce spice powders	7	13	-	-
PC20. set control parameters of spice roasting machine, start machine, weigh cleaned spices and transfer into the roaster for roasting to reduce moisture	1	2	-	-
PC21. fix screen in the spice mill (plate mill/hammer mill/pin mill, roller mill), adjust clearance between plates or rollers, set controls parameters for milling	1	1	-	-
PC22. start spice mill, dump cleaned/sterilized spices in the feed hopper of the mill, open chute and control the quantity of spice entering mill for grinding to produce spice flakes/ spice powders	1.5	2.5	-	-
PC23. collect the milled spices in container and allow to stand for cooling	0.5	1.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC24. fix screens in the sifting/sieving machine, set control parameters and start machine, transfer spice powder into the sieving machine to sift and obtain spice powder of uniform fineness	1	2	-	-
PC25. collect spice flakes/spice powder in container and transfer to packaging area (or) open chute to transfer ground spice to the packaging line	1	2	-	-
PC26. in continuous processing line, set controls of pneumatic system, cleaning machines, spice cutting machine, stem sterilization line, spice milling machine, packaging machines, dump raw material into spice processing line, monitor process, control and maintain process parameters, check the product at each stage of processing, sample and transfer to quality lab	1	2	-	-
Produce curry powders	6	14	-	-
PC27. weigh various roasted spices for curry powder following the formulation	1	2	-	-
PC28. set controls of blending machine, start machine to blend spice, stop blender, tilt to transfer blended spices into container	1	2	-	-
PC29. fix/change screens in spice mill, adjust clearance between plates and start machine, dump blended spices in the feed hopper and open chute to allow spices into spice mill, start mill to grind mixed spices to obtain curry powder	1	3	-	-
PC30. collect curry powder in container and allow to stand for specified time to cool product	0.5	1.5	-	-
PC31. transfer cooled curry powder into blending machine, set controls and star machine to uniformly mix the curry powder	1	2	-	-
PC32. fix screens, set controls of sifter/sieving machine, transfer curry powder on sieving machine to sieve and obtain product of uniform fineness	1	2	-	-
PC33. open chute to allow curry powder into the packaging line (or) collect curry powder in container and transfer to packaging area	0.5	1.5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Pack and sterilize spice products	3.5	6.5	-	-
PC34. load packaging materials and labels in packaging machine, set filling quantity and labeling details, transfer product into the feed hopper of packaging machine, start machine to pack finished products	0.5	1.5	-	-
PC35. sample products produced (cleaned spices, roasted spices, steam sterilized spices, spice flakes, spice powder, curry powder etc) from production line and packed product, and transfer to quality lab for analysis	0.5	0.5	-	-
PC36. load packed spice products in the radiation room, expose spices to gamma radiation for specified time to remove pathogens (or)	1	1	-	-
PC37. load packed spice products in ethylene treatment chamber, close chamber door, evacuate air, release ethylene gas into the chamber, monitor and control parameter	0.5	1.5	-	-
PC38. evacuate remaining ethylene gas from chamber after specified time, open chamber, remove sterilized spice products	0.5	1.5	-	-
PC39. place the packed sterilized products in cartons and seal, transfer to storage area and store maintaining storage conditions following SOP	0.5	0.5	-	-
Post production cleaning and regular maintenance of equipments	2	3	-	-
PC40. clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers	0.5	1.5	-	-
PC41. attend minor repairs/faults of all machines (if any)	1	1	-	-
PC42. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the SOP or following suppliers instructions/manuals	0.5	0.5	-	-
NOS Total	35	65	-	-

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N8509
NOS Name	Produce spice products
Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Bread and Bakery, Packaged Foods
Occupation	GENERIC
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	30/07/2024
NSQC Clearance Date	30/09/2021

FIC/N9001: Ensure food safety, hygiene and sanitation for processing food products

Description

This unit is about maintaining food safety, hygiene and sanitation in work area and processing unit for processing food products

Elements and Performance Criteria

Perform safety and sanitation related functions (for processing food products)

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

PC1. comply with food safety and hygiene procedures followed in the organization

PC2. ensure personal hygiene by use of gloves, hairnets, masks, ear plugs, goggles, shoes, etc.

PC3. ensure hygienic production of food by inspecting raw materials, ingredients, finished products etc. for compliance to physical, chemical and microbiological parameters

PC4. pack products in appropriate packaging materials, label and store them in designated area, free from pests, flies and infestations

PC5. clean, maintain and monitor food processing equipment periodically, using it only for the specified purpose

PC6. use safety equipment such as fire extinguisher, eye wash unit, first aid kit when required

PC7. follow housekeeping practices by having designated area for machines/tools

PC8. follow industry standards like GMP, HACCP and product recall process

PC9. attend training on hazard management to understand types of hazards such as physical, chemical and biological hazards and measures to control andprevent them

PC10. Identify, document and report problems such as rodents and pests to management

PC11. conduct workplace checklist audit before and after work to ensure safety and hygiene

PC12. document and maintain raw material, packaging material, process and finished products for the credibility and effectiveness of the food safety control system

Apply food safety practices (for processing food products)

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

PC13. determine the quality of food using criteria such as odour, appearance, taste and best before date, and take immediate measures to prevent spoilage

PC14. store raw materials, finished products and allergens separately to prevent cross contamination

PC15. label raw materials and finished products and store them in different storage areas according to safe food practices

PC16. follow stock rotation based on FEFO/FIFO

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organization standards, process standards and procedures followed in the organisation

KU2. types of products produced by the organisation
KU3. code of business conduct
KU4. dress code to be followed
KU5. job responsibilities/duties and standard operating procedures
KU6. internal processes such as procurement, store management, inventory management, quality management and key contact points for query resolution
KU7. provision of wages, working hours as per organisation policy
KU8. food safety and hygiene standards followed
KU9. possible physical, chemical and biological hazards and methods of prevention of various hazards
KU10. personal hygiene requirement
KU11. different types of sanitizers used for process area, equipment and the procedure to use them
KU12. knowledge on food safety standards and regulations (as per fssai)
KU13. quality parameters and quality assessment based on physical parameters, basic food microbiology
KU14. labelling/marking requirements for raw materials, finished goods, stored materials, packaging materials and their designated storage area
KU15. cleaning and sanitation of equipment and work area
KU16. CIP and COP methods and procedures
KU17. storage norms for raw materials, packaging material and finished products
KU18. stock rotation of ingredients and finished products based on FEFO/FIFO
KU19. method of maintaining safety check lists for all machineries
KU20. GHP
KU21. GMP
KU22. HACCP

Generic Skills (GS)

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

GS1. note the information communicated by the supervisor
GS2. note the raw materials used for production and the finished products produced
GS3. note the readings of the process parameters and provide necessary information to fill the process chart
GS4. note down observations (if any) related to the process
GS5. write information documents to internal departments/ internal teams
GS6. note down the data for online ERP or as per applicability in the organization
GS7. read and interpret the process required for producing various types of products
GS8. read and interpret and process flowchart for all products produced
GS9. read equipment manuals and process documents to understand the equipment operation and process requirement
GS10. read internal information documents sent by internal teams

GS11. discuss task lists, schedules and activities with the supervisor

GS12. effectively communicate with the team members

GS13. question the supervisor in order to understand the nature of the problem and to clarify queries

GS14. attentively listen and comprehend the information given by the speaker

GS15. communicate clearly with the supervisor and cross department teams on the issues faced during process

GS16. analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue

GS17. handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)

GS18. plan and organize the work order and jobs received from the supervisor

GS19. organize raw materials and packaging materials required for all products following the instruction provided by the supervisor

GS20. plan and prioritize the work based on the instructions received from the supervisor

GS21. plan to utilise time and equipment's effectively

GS22. organize all process/ equipment manuals so as to access information easily

GS23. support the supervisor in scheduling tasks for helper(s)

GS24. understand customer requirements and their priority and respond as per their needs

GS25. support supervisor in solving problems by detailing out problems

GS26. discuss the possible solutions with the supervisor for problem solving

GS27. apply domain information about maintenance processes and technical knowledge about tools and equipment

GS28. use common sense and make judgments on day to day basis

GS29. use reasoning skills to identify and resolve basic problems

GS30. use intuition to detect any potential problems which could arise during operations

GS31. use acquired knowledge of the process for identifying and handling issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Perform safety and sanitation related functions (for processing food products)	25	50	-	-
PC1. comply with food safety and hygiene procedures followed in the organization	2	3	-	-
PC2. ensure personal hygiene by use of gloves, hairnets, masks, ear plugs, goggles, shoes, etc.	1	5	-	-
PC3. ensure hygienic production of food by inspecting raw materials, ingredients, finished products etc. for compliance to physical, chemical and microbiological parameters	2	3	-	-
PC4. pack products in appropriate packaging materials, label and store them in designated area, free from pests, flies and infestations	4	6	-	-
PC5. clean, maintain and monitor food processing equipment periodically, using it only for the specified purpose	2	3	-	-
PC6. use safety equipment such as fire extinguisher, eye wash unit, first aid kit when required	4	6	-	-
PC7. follow housekeeping practices by having designated area for machines/tools	2	3	-	-
PC8. follow industry standards like GMP, HACCP and product recall process	4	6	-	-
PC9. attend training on hazard management to understand types of hazards such as physical, chemical and biological hazards and measures to control andprevent them	1	4	-	-
PC10. Identify, document and report problems such as rodents and pests to management	1	4	-	-
PC11. conduct workplace checklist audit before and after work to ensure safety and hygiene	1	4	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. document and maintain raw material, packaging material, process and finished products for the credibility and effectiveness of the food safety control system	1	3	-	-
Apply food safety practices (for processing food products)	10	15	-	-
PC13. determine the quality of food using criteria such as odour, appearance, taste and best before date, and take immediate measures to prevent spoilage	2	3	-	-
PC14. store raw materials, finished products and allergens separately to prevent cross contamination	2	3	-	-
PC15. label raw materials and finished products and store them in different storage areas according to safe food practices	2	3	-	-
PC16. follow stock rotation based on FEFO/FIFO	4	6	-	-
NOS Total	**35**	**65**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N9001
NOS Name	Ensure food safety, hygiene and sanitation for processing food products
Sector	Food Processing
Sub-Sector	Fruits and Vegetables
Occupation	Generic
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	30/09/2024
NSQC Clearance Date	30/09/2021

FIC/N9023: Prepare and maintain work area and process machineries for the production of final products

Description

This OS unit is about preparing and maintaining work area and process machineries for the production of final products.

Elements and Performance Criteria

Prepare and maintain work area (for production of final products)

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

PC1. clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, flies and pests

PC2. ensure that the work area is safe and hygienic for food processing

PC3. dispose waste materials as per defined SOPs and industry requirements

Prepare and maintain process machineries and tools (for production of final products)

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

PC4. check the working and performance of all machineries and tools used for food processing such as fruit washer, peeler, slicer, fruit pulper, steam jacketed kettles, packaging machines, filter, pasteurizer, separator etc

PC5. clean the machineries and tools used with approved sanitizers following organization Specifications and standards

PC6. place the necessary tools required for process

PC7. attend to the minor repairs/ faults of all machines, if required

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organization standards, process standards and procedures followed in the organisation

KU2. types of products produced by the organisation

KU3. code of business conduct

KU4. dress code to be followed

KU5. job responsibilities/duties and standard operating procedures

KU6. internal processes like procurement, store management, inventory management, quality management and key contact points for query resolution

KU7. provision of wages, working hours and accident compensation as per organisation policy

KU8. food safety and hygiene standards followed

KU9. types of chemicals, materials and equipment required for the cleaning and maintenance

KU10. cleaning process to disinfect equipment/ tools

KU11. supplier/manufacturers instructions related to cleaning and maintenance

KU12. knowledge of food safety standards and regulations (as per fssai)

KU13. knowledge on legal regulations pertaining to work place like health and safety, recommended dosage for use of sanitizers, control of substances hazardous to health, handling/storage/ disposal/ cautions of use of sanitizers and disinfectants, fire precautions, occurrences, hygiene practice, disposal of waste, environmental protection, etc

Generic Skills (GS)

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

GS1. note the information communicated by the supervisor
GS2. note the raw materials used for production and the finished products produced
GS3. note the readings of the process parameters and provide necessary information to fill the process chart
GS4. note down observations (if any) related to the process
GS5. write information documents to internal departments/ internal teams
GS6. note down the data for online ERP or as per applicability in the organization
GS7. read and interpret the process required for producing various types of products
GS8. read and interpret and process flowchart for all products produced
GS9. read equipment manuals and process documents to understand the equipments operation and process requirement
GS10. read internal information documents sent by internal teams
GS11. discuss task lists, schedules and activities with the supervisor
GS12. effectively communicate with the team members
GS13. question the supervisor in order to understand the nature of the problem and to clarify queries
GS14. attentively listen and comprehend the information given by the speaker
GS15. communicate clearly with the supervisor and cross department teams on the issues faced during process
GS16. analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue
GS17. handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)
GS18. plan and organize the work order and jobs received from the supervisor
GS19. organize raw materials and packaging materials required for all products following the instruction provided by the supervisor
GS20. plan and prioritize the work based on the instructions received from the supervisor
GS21. plan to utilise time and equipment's effectively
GS22. organize all process/ equipment manuals so as to access information easily
GS23. support the supervisor in scheduling tasks for helper(s)
GS24. understand customer requirements and their priority and respond as per their needs
GS25. support supervisor in solving problems by detailing out problems
GS26. discuss the possible solutions with the supervisor for problem solving

GS27. apply domain information about maintenance processes and technical knowledge about tools and equipment

GS28. use common sense and make judgments on day to day basis

GS29. use reasoning skills to identify and resolve basic problems

GS30. use intuition to detect any potential problems which could arise during operations

GS31. use acquired knowledge of the process for identifying and handling issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare and maintain work area (for production of final products)	18	32	-	-
PC1. clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, flies and pests	10	15	-	-
PC2. ensure that the work area is safe and hygienic for food processing	3	7	-	-
PC3. dispose waste materials as per defined SOPs and industry requirements	5	10	-	-
Prepare and maintain process machineries and tools (for production of final products)	17	33	-	-
PC4. check the working and performance of all machineries and tools used for food processing such as fruit washer, peeler, slicer, fruit pulper, steam jacketed kettles, packaging machines, filter, pasteurizer, separator etc	5	10	-	-
PC5. clean the machineries and tools used with approved sanitizers following organization Specifications and standards	5	10	-	-
PC6. place the necessary tools required for process	2	3	-	-
PC7. attend to the minor repairs/ faults of all machines, if required	5	10	-	-
NOS Total	**35**	**65**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N9023
NOS Name	Prepare and maintain work area and process machineries for the production of final products
Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Bread and Bakery, Packaged Foods, Dairy Products
Occupation	Processing
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	29/06/2024
NSQC Clearance Date	30/09/2021

FIC/N9024: Complete documentation and record keeping related to production of final products

Description

This unit is about documenting and maintaining records of raw materials, process and finished products related to production of final products

Elements and Performance Criteria

Document and maintain records of raw materials (for production of final products)

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

PC1. document and maintain record of details of raw materials and packaging materials such as name of raw materials, type and variety, vendor/supplier details, grown area, grown season, quantity, receiving date, supplier details, receiving date/ date of manufacture, expiry date, supplier quality document, quality parameters of all raw materials, internal quality analysis report, etc. as per organisation standards

PC2. document and maintain record on observations (if any) related to raw materials and packaging materials

PC3. load the raw materials details in ERP for future reference

PC4. verify the documents and track from finished product to raw materials, in case of quality concerns and during quality management system audits

Document and maintain records of production schedule and process parameters (for production of final products)

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

PC5. document and maintain records of production plan with details such as product details, production sequence, equipments and machinery details, efficiency and capacity utilization of equipment

PC6. document and maintain records of process details such as type of raw material used, process parameters (temperature, time, pressure, etc. as applicable) for entire production and packaging in process chart or production log for all products produced

PC7. document and maintain records of batch size, production yield, wastage of raw materials, energy utilization and final products produced

PC8. document and maintain record of observations (if any) or deviations related to process and production

PC9. load the production plan and process details in ERP for future reference

PC10. verify documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits

Document and maintain records of the finished products

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

PC11. document and maintain records of the types of finished products produced

PC12. document and maintain records of the finished products details such as batch number, time of packing, date of manufacture, date of expiry, other label details, primary,secondary and tertiary packaging materials for all finished products, storage conditions, etc. as per organisation standards

PC13. document and mmaintain record of observations or deviations (if any) related to finished products

PC14. load the finished product details in ERP for future reference

PC15. verify the documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organization standards, process standards and procedures followed in the organisation

KU2. types of products produced by the organisation

KU3. code of business conduct

KU4. dress code to be followed

KU5. job responsibilities/duties and standard operating procedures

KU6. internal processes like procurement, store management, inventory management, quality management and key contact points for query resolution

KU7. provision of wages, working hours and accident compensation as per organisation policy

KU8. food safety and hygiene standards followed

KU9. documentation system followed in the organization like, production chart, process chart and finished goods chart

KU10. details to be recorded on raw materials and finished products

KU11. details to be recorded and maintained on production plan and process parameters

KU12. methods to record and maintain records on observations (if any) related to raw materials, process and finished products

KU13. tracking back the record from finished product to raw material

KU14. entering details in the ERP system followed by the organisation

Generic Skills (GS)

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

GS1. note the information communicated by the supervisor

GS2. note the raw materials used for production and the finished products produced

GS3. note the readings of the process parameters and provide necessary information to fill the process chart

GS4. note down observations (if any) related to the process

GS5. write information documents to internal departments/ internal teams

GS6. note down the data for online erp or as per applicability in the organization

GS7. read and interpret the process required for producing various types of products

GS8. read and interpret and process flowchart for all products produced

GS9. read equipment manuals and process documents to understand the equipment operation and process requirement

GS10. read internal information documents sent by internal teams

GS11. discuss task lists, schedules and activities with the supervisor

GS12. effectively communicate with the team members

GS13. question the supervisor in order to understand the nature of the problem and to clarify queries

GS14. attentively listen and comprehend the information given by the speaker

GS15. communicate clearly with the supervisor and cross department teams on theissues faced during process

GS16. analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue

GS17. handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)

GS18. plan and organize the work order and jobs received from the supervisor

GS19. organize raw materials and packaging materials required for all products following the instruction provided by the supervisor

GS20. plan and prioritize the work based on the instructions received from the supervisor

GS21. plan to utilise time and equipment's effectively

GS22. organize all process/ equipment manuals so as to access information easily

GS23. support the supervisor in scheduling tasks for helper(s)

GS24. understand customer requirements and their priority and respond as per their needs

GS25. support supervisor in solving problems by detailing out problems

GS26. discuss the possible solutions with the supervisor for problem solving

GS27. apply domain information about maintenance processes and technical knowledge about tools and equipment

GS28. use common sense and make judgments on day to day basis

GS29. use reasoning skills to identify and resolve basic problems

GS30. use intuition to detect any potential problems which could arise during operations

GS31. use acquired knowledge of the process for identifying and handling issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Document and maintain records of raw materials (for production of final products)	15	10	-	-
PC1. document and maintain record of details of raw materials and packaging materials such as name of raw materials, type and variety, vendor/supplier details, grown area, grown season, quantity, receiving date, supplier details, receiving date/ date of manufacture, expiry date, supplier quality document, quality parameters of all raw materials, internal quality analysis report, etc. as per organisation standards	6	4	-	-
PC2. document and maintain record on observations (if any) related to raw materials and packaging materials	3	2	-	-
PC3. load the raw materials details in ERP for future reference	3	2	-	-
PC4. verify the documents and track from finished product to raw materials, in case of quality concerns and during quality management system audits	3	2	-	-
Document and maintain records of production schedule and process parameters (for production of final products)	30	20	-	-
PC5. document and maintain records of production plan with details such as product details, production sequence, equipments and machinery details, efficiency and capacity utilization of equipment	6	4	-	-
PC6. document and maintain records of process details such as type of raw material used, process parameters (temperature, time, pressure, etc. as applicable) for entire production and packaging in process chart or production log for all products produced	9	6	-	-
PC7. document and maintain records of batch size, production yield, wastage of raw materials, energy utilization and final products produced	6	4	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC8. document and maintain record of observations (if any) or deviations related to process and production	3	2	-	-
PC9. load the production plan and process details in ERP for future reference	3	2	-	-
PC10. verify documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits	3	2	-	-
Document and maintain records of the finished products	15	10	-	-
PC11. document and maintain records of the types of finished products produced	2	1	-	-
PC12. document and maintain records of the finished products details such as batch number, time of packing, date of manufacture, date of expiry, other label details, primary,secondary and tertiary packaging materials for all finished products, storage conditions, etc. as per organisation standards	4	3	-	-
PC13. document and mmaintain record of observations or deviations (if any) related to finished products	3	2	-	-
PC14. load the finished product details in ERP for future reference	3	2	-	-
PC15. verify the documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits	3	2	-	-
NOS Total	**60**	**40**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N9024
NOS Name	Complete documentation and record keeping related to production of final products
Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Bread and Bakery, Packaged Goods
Occupation	Processing
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	29/06/2024
NSQC Clearance Date	30/09/2021

FIC/N9025: Working in a team and learning team work ethics

Description

This OS unit is about working in a team on day to day basis, assisting the team in various engagement initiatives at the work area, helping them improve their skills levels and ensuring coordination in the best possible manner in order to maximize people productivity.

Elements and Performance Criteria

Manage and lead a team

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

PC1. communicated with team members to ensure that the team is aware of the schedule and job expectations

PC2. involve with other team members in regular meetings to communicate information intended for them

PC3. ensure communication to the team on any changes in processes by the organization through multiple mediums as verbal/ written mechanisms

PC4. ensure coordination with the team members in various kind of activities organized by the organization

PC5. counsel and address issues among the team for any work related issues

PC6. support the manager in deployment of the team as per production schedule and the organizational norms and guidelines

PC7. attend periodic training of the team and support the manager in the same

PC8. share knowledge of processes, techniques and products with the team to enhance their skill levels

PC9. provide feedback to the manager pertaining to performance of the team

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Organizations standards of performance, services and products

KU2. Relevant HR policies and processes followed by the organization

KU3. Knowledge of organizational norms and guidelines

KU4. How and when to measure performance of the team

KU5. How to share feedback with team members

KU6. Applicable legislation relating to the workplace (for example health and safety, workplace regulations, use of work equipment, handling/ storage/ disposal/ cautions of use of products, fire precautions, hygiene practice, disposal of waste, environmental protection)

Generic Skills (GS)

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

GS1. question in order to understand the nature of the problem and to clarify queries
GS2. attentively listen and comprehend the information given by the speaker
GS3. communicate clearly on the issues being faced
GS4. analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue
GS5. handle issues in case the manager is not available (as per the authority matrix defined by the organization)
GS6. plan and organize the work order and jobs received
GS7. organize raw materials and packaging materials required for all products
GS8. plan and prioritize the work based on the instructions received
GS9. plan to utilise time and equipment's effectively
GS10. organize all process/ equipment manuals so as to access information easily
GS11. support the manager in scheduling tasks for helper(s)
GS12. understand customer requirements and their priority and respond as per their needs
GS13. support manager in solving problems by detailing out problems
GS14. discuss the possible solutions with the manager for problem solving
GS15. apply domain information about maintenance processes and technical knowledge about tools and equipment
GS16. use common sense and make judgments on day to day basis
GS17. use reasoning skills to identify and resolve basic problems
GS18. use intuition to detect any potential problems which could arise during operations
GS19. use acquired knowledge of the process for identifying and handling issues
GS20. note the information communicated
GS21. note the raw materials used for production and the finished products produced
GS22. note the readings of the process parameters and provide necessary information to fill the process chart
GS23. note down observations (if any) related to the process
GS24. write information documents to internal departments/ internal teams
GS25. note down the data for online erp or as per applicability in the organization
GS26. read and interpret the process required for producing various types of products
GS27. read and interpret and process flowchart for all products produced
GS28. read equipment manuals and process documents to understand the equipments operation and process requirement
GS29. read internal information documents sent by internal teams
GS30. discuss task lists, schedules and activities
GS31. effectively communicate with team members

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Manage and lead a team	35	65	-	-
PC1. communicated with team members to ensure that the team is aware of the schedule and job expectations	4	8	-	-
PC2. involve with other team members in regular meetings to communicate information intended for them	4	8	-	-
PC3. ensure communication to the team on any changes in processes by the organization through multiple mediums as verbal/ written mechanisms	4	8	-	-
PC4. ensure coordination with the team members in various kind of activities organized by the organization	4	8	-	-
PC5. counsel and address issues among the team for any work related issues	4	8	-	-
PC6. support the manager in deployment of the team as per production schedule and the organizational norms and guidelines	4	6	-	-
PC7. attend periodic training of the team and support the manager in the same	3	7	-	-
PC8. share knowledge of processes, techniques and products with the team to enhance their skill levels	4	6	-	-
PC9. provide feedback to the manager pertaining to performance of the team	4	6	-	-
NOS Total	35	65	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N9025
NOS Name	Working in a team and learning team work ethics
Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Bread and Bakery, Packaged Goods
Occupation	Processing
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	29/06/2024
NSQC Clearance Date	30/09/2021

FIC/N9005: Evaluate and develop entrepreneur skills

Description

This OS unit is about evaluating and developing entrepreneur skills before starting a food processing unit

Elements and Performance Criteria

Evaluate before starting foodprocessing unit

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

PC1. self evaluate on the capability to start usiness, develop business, manage an organization, manage time, handle ifferent people (customers, vendors, government officials, bankers, onsultants, etc),make independent and clear decisions under pressure, physical and emotional stamina work long hours

PC2. evaluate the performance of various food processing sectors and sale/market share of various category of processed foods, to decide on starting the food processing sector and food product

PC3. choose the right product based on trengths,potential,capability, market demand,profitability,personal preferences

PC4. conduct market survey to understand the market trend,market needs, opportunity, competition

PC5. review market demand based on ompetitors,customers, market requirement, current market status etc

PC6. consult with experts, experienced people and family on the ideas developed

Develop Entrepreneur Skills

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

PC7. acquire knowledge (through training or other sources like reading books) on communication skills, management skills, accounting skills, marketing skills

PC8. develop / acquire technical skills (through training or through work experience) on raw materials handling product processing, productpreservation, packaging ,quality control, roduct storage, processing machineries, relevant food laws and regulations, food safety hygiene and sanitation

PC9. develop skills on distribution, sales and marketing (through training or discussing and learning from experienced people)

PC10. learn to be realistic and objective while planning business, and discrete in sharing the ideas

PC11. acquire knowledge (through training or other sources like reading books) on communication skills, management skills, accounting skills,marketing skills

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant organisational standards, process standards and procedures required for the food processing unit

KU2. performance evaluation of food processing units

KU3. decision making on products to be produced in the organisation
KU4. methods and importance of market survey
KU5. understanding market demand
KU6. methods and importance of consulting with experts
KU7. various food processing industries, market trend and market share of various processed food
KU8. technical requirement for food processing sector like raw materials, packaging materials, process etc
KU9. food processing machineries
KU10. quality requirement for food
KU11. food laws and regulations
KU12. food safety and hygiene
KU13. good manufacturing practice (GMP)
KU14. hazard analysis and critical control point (HACCP)

Generic Skills (GS)

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

GS1. note thet information to be communicated
GS2. fill relevant applications required for food processing units
GS3. note the information required for establishing and operating food processing unit
GS4. document the process, process equipments and parameters for products processed
GS5. record the raw materials, finished products produced, inventory, stock distribution, marketing and sales
GS6. note down observations (if any) related to the process or organisation
GS7. write communications to government officials, financial institutions and employees
GS8. note down the data for erp or as required by the organization
GS9. read communications from various government departments
GS10. read and interpret and process flowchart and process required for all products produced
GS11. read internal communications from the employees
GS12. read communications from market, various trade related organisations
GS13. discuss task lists, schedules and activities with the employees
GS14. effectively communicate with the employees
GS15. question the employees in order to understand the nature of the problem and to clarify queries
GS16. attentively listen and comprehend the information given by the speaker
GS17. communicate clearly with the employees to understand and resolve issues
GS18. communicate clearly with the vendors, government officials, bankers, employees, customers, consumers etc with respect to organisation, process, product, sales etc
GS19. analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue

GS20. handle and resolve issues related to entire operation, in case of issues beyond the capability of the employees

GS21. plan and organize the work

GS22. plan and allot work/responsibilities to the employees

GS23. organize raw materials and packaging materials required for all products produced in the organisation

GS24. plan to prioritize work based on organisational needs

GS25. plan to prioritize the work based on the order/market requirement

GS26. plan to utilize the time and equipments effectively

GS27. plan to utilise the time effectively

GS28. support the employees in their tasks to achieve production and sales

GS29. understand customer requirements and their priority and respond as per their needs

GS30. support employees in solving problems by understanding the problems

GS31. arrive at possible solution for problems related to operation, by discussing with experienced/concerned people

GS32. apply domain information about maintenance processes and technical knowledge about tools and equipment

GS33. use common sense and make judgments on day to day basis

GS34. use reasoning skills to identify and resolve basic problems

GS35. use intuition to detect any potential problems which could arise during operations

GS36. use acquired knowledge of the process for identifying and handling issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Evaluate before starting foodprocessing unit	19	41	-	-
PC1. self evaluate on the capability to start usiness, develop business, manage an organization, manage time, handle ifferent people (customers, vendors, government officials, bankers, onsultants, etc),make independent and clear decisions under pressure, physical and emotional stamina work long hours	5	10	-	-
PC2. evaluate the performance of various food processing sectors and sale/market share of various category of processed foods, to decide on starting the food processing sector and food product	3	7	-	-
PC3. choose the right product based on trengths,potential,capability, market demand,profitability,personal preferences	3	7	-	-
PC4. conduct market survey to understand the market trend,market needs, opportunity, competition	3	7	-	-
PC5. review market demand based on ompetitors,customers, market requirement, current market status etc	3	7	-	-
PC6. consult with experts, experienced people and family on the ideas developed	2	3	-	-
Develop Entrepreneur Skills	16	24	-	-
PC7. acquire knowledge (through training or other sources like reading books) on communication skills, management skills, accounting skills, marketing skills	4	6	-	-
PC8. develop / acquire technical skills (through training or through work experience) on raw materials handling product processing, productpreservation, packaging ,quality control, roduct storage, processing machineries, relevant food laws and regulations, food safety hygiene and sanitation	4	6	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC9. develop skills on distribution, sales and marketing (through training or discussing and learning from experienced people)	4	6	-	-
PC10. learn to be realistic and objective while planning business, and discrete in sharing the ideas	2	3	-	-
PC11. acquire knowledge (through training or other sources like reading books) on communication skills, management skills, accounting skills,marketing skills	2	3	-	-
NOS Total	**35**	**65**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N9005
NOS Name	Evaluate and develop entrepreneur skills
Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Food Grain Milling, Dairy Products, Meat and Poultry, Fish and Sea Food, Bread and Bakery, Alcoholic Beverages, Aerated Water/Soft Drinks, Soya Food, Packaged Foods
Occupation	Processing
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	29/06/2024
NSQC Clearance Date	30/09/2021

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.

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/N0103.Produce Squash and Juice	35	65	-	-	100	8
FIC/N0107.Pickle making	35	65	-	-	100	8
FIC/N0111.Produce jam, jelly and ketchup	35	65	-	-	100	8
FIC/N0118.Dry/ Dehydrate fruits and vegetables	35	65	-	-	100	8
FIC/N0122.Produce fruit pulp from various fruits	35	65	-	-	100	8
FIC/N0126.Can fruits and vegetables	35	65	-	-	100	8
FIC/N0129.Sort and grade produce	35	65	-	-	100	8
FIC/N5007.Produce baked products in artisan bakeries and patisseries	35	65	-	-	100	8
FIC/N8509.Produce spice products	35	65	-	-	100	8
FIC/N9001.Ensure food safety, hygiene and sanitation for processing food products	35	65	-	-	100	8

Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
FIC/N9023.Prepare and maintain work area and process machineries for the production of final products	35	65	-	-	100	5
FIC/N9024.Complete documentation and record keeping related to production of final products	60	40	-	-	100	10
FIC/N9025.Working in a team and learning team work ethics	35	65	-	-	100	5
FIC/N9005.Evaluate and develop entrepreneur skills	35	65	-	-	100	0
Total	**515**	**885**	**-**	**-**	**1400**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Glossary

Sector	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.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	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.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	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.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	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.
Scope	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.

Knowledge and Understanding (KU)	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.
Organisational Context	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.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	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.
Electives	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.
Options	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.