



Preservation Technician-Fruits and Vegetables

QP Code: FIC/Q0202

Version: 1.0

NSQF Level: 4

Food Industry Capacity & Skill Initiative || Shriram Bharatiya Kala kendra, 3rd floor, 1, Copernicus Marg, Mandi House, New Delhi
Delhi 110001

Contents

FIC/Q0202: Preservation Technician-Fruits and Vegetables	3
<i>Brief Job Description</i>	3
Applicable National Occupational Standards (NOS)	3
<i>Compulsory NOS</i>	3
<i>Qualification Pack (QP) Parameters</i>	3
FIC/N9026: Prepare for production	5
FIC/N0203: Carry out preservation of fruits and vegetables	10
FIC/N9901: Implement health and safety practices at the workplace	19
FIC/N9902: Work effectively in an organisation	25
SGJ/N1702: Optimize resource utilization at workplace	29
Assessment Guidelines and Weightage	32
<i>Assessment Guidelines</i>	32
<i>Assessment Weightage</i>	33
Acronyms	34
Glossary	35

FIC/Q0202: Preservation Technician-Fruits and Vegetables

Brief Job Description

A Fruits and Vegetables Preservation Technician is responsible for drying or dehydrating, canning and freezing of various types of fruits and vegetables as per organizations standards.

Personal Attributes

The individual should have good planning, organizing and execution skills. The individual must possess reading, writing and communication skills. In addition, the individual should have basic understanding of FSSAI standards.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [FIC/N9026: Prepare for production](#)
2. [FIC/N0203: Carry out preservation of fruits and vegetables](#)
3. [FIC/N9901: Implement health and safety practices at the workplace](#)
4. [FIC/N9902: Work effectively in an organisation](#)
5. [SGJ/N1702: Optimize resource utilization at workplace](#)

Qualification Pack (QP) Parameters

Sector	Food Processing
Sub-Sector	Fruits and Vegetables
Occupation	Processing-Fruits and Vegetables
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO2015/ 7514.0700

Minimum Educational Qualification & Experience	10th Class OR 8th Class with 2 Years of experience Relevant experience OR Certificate-NSQF (level 3 qualification certificate in food processing sector) with 1 Year of experience Relevant experience
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	16 Years
Last Reviewed On	NA
Next Review Date	NA
NSQC Approval Date	
Version	1.0

FIC/N9026: Prepare for production

Description

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

Scope

The scope covers the following :

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

Elements and Performance Criteria

Plan for production

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

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

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

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

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

Organize for production

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

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

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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

Generic Skills (GS)

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

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

Assessment Criteria

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

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

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N9026
NOS Name	Prepare for production
Sector	Food Processing
Sub-Sector	Generic
Occupation	Production
NSQF Level	3
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2024
NSQC Clearance Date	24/02/2022

FIC/N0203: Carry out preservation of fruits and vegetables

Description

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

Scope

The scope covers the following :

- Dry/dehydrate the fruits and vegetable
- Can the fruits and vegetables
- Freeze the fruits and vegetable

Elements and Performance Criteria

Dry/dehydrate ,the fruits and vegetable

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

- PC1.** receive produce from the supplier/vendor
- PC2.** weigh and verify the quality through physical parameters such as appearance, colour, texture, maturity, etc.
- PC3.** transfer produce manually into the washing tank or start elevator conveyor to transfer
- PC4.** operate agitator and remove dirt, soil, etc., start ladder conveyor to transfer produce to washing line conveyor
- PC5.** spray high pressure chlorinated water and rinse with fresh water
- PC6.** operate sorting/inspecting line conveyor to transfer produce to inspection station
- PC7.** inspect visually and remove damaged, blemished and rotten fruits and discard them
- PC8.** operate conveyor or elevator and transfer sorted produce into peeler or corer machine and prepare lye solution for lye peeling (depending on the type of produce)
- PC9.** heat the lye solution in tank, observe dials and adjust controls to regulate pressure and temperature
- PC10.** carryout lye peeling by immersing the produce into lye peeling machine to remove the skin/membrane and drain out the excess lye solution
- PC11.** carryout steam peeling of produce and wash the peeled/scalded produce
- PC12.** operate conveyor to transfer the produce to chopper/cutter/slicer machine to slice to specified size and shape following SOP
- PC13.** operate conveyor to feed produce in the blanching machine
- PC14.** inspect the blanched produce visually for feel, colour, texture etc. to determine quality
- PC15.** pump measured quantity of water into sulphurising tank, measure chemicals mix manually or start stirrer for uniform mixing to prepare sulphur solution
- PC16.** load produce (only that require sulphurising) in trays for sulphur treatment
- PC17.** lift basket (or) start conveyor to remove sulphur from treated produce after specified time

- PC18.** transfer loaded trays to the drying area/yard, arrange in rows in drying area for exposure to direct sunlight, allow the produce to completely dry (drying time depends on intensity of sunlight and the type of produce)
- PC19.** check the dried produce to ensure complete removal of moisture
- PC20.** transfer dried product into scraping line or to vibrating mesh conveyor to remove any undesirable particles
- PC21.** transfer dried produce to finished product inspection line for hot air drying and set temperature and time for various types of produce following SOP
- PC22.** set control parameters of tunnel drier (in control panel of drier or in plc) Parameters: drier temperature, drying time, fan speed, air temperature, rate of air flow etc
- PC23.** • check the dried product passing out of tunnel drier through physical parameters
 • Parameters: colour, appearance, dryness (through feel), firmness etc
- PC24.** transfer produce to the cooling area, start fans and cooling equipment and cool the dried produce

Can the fruits and vegetables

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

- PC25.** receive the raw material (fruits/vegetables) for canning
- PC26.** wash the raw material with water to remove dust, dirt and adhering surface microflora
- PC27.** perform sorting and grading to ensure the removal of inferior or damaged portion
- PC28.** perform peeling, coring and pitting: These are the primary unit operations for preparing produce for canning
- PC29.** perform cutting/splitting/ slicing either manually or mechanically
- PC30.** blanch the produce with boiling water or steam for short periods followed by immediate cooling prior to canning is called blanching
- PC31.** for fruits which cannot be blanched due to their delicate tissue structure treated with some chemicals to prevent oxidative browning, occurring due to exposure to oxygen during peeling and slicing
- PC32.** perform filling of material in cans (Tin cans are sterilized in hot water or in steam jet to remove any adhering dust or foreign matter)
- PC33.** perform syruping (cans are filled with hot sugar syrup (35-55%) for fruits) or brining (cans are filled with hot brine (2-10%) concentration for vegetables)
- PC34.** Perform exhausting by removing air from the contents in the can before sealing
- PC35.** seaming/closing: Immediately after exhausting, the cans are sealed by using a double seamer
- PC36.** perform coding/Embossing of lid to identify the can once closed
- PC37.** perform heat processing to achieve sterilization of contents
- PC38.** perform cooling of the sealed cans to approximately 35-40oC to stop the cooking process and to prevent stack burning
- PC39.** stack the cans to allow the outer surface to dry (below 300C)

Freeze the fruits and vegetable

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

- PC40.** perform the treatment given prior to freezing (blanching, SO₂, ascorbic acid)
- PC41.** wash and sort fruit
- PC42.** discard poor-quality pieces

- PC43.** treat washed and sorted fruit with ascorbic acid (available at drugstores, 1 teaspoon = 3 grams) or some other treatment to prevent discoloration, particularly with apples, peaches and nectarines
- PC44.** add crystalline ascorbic acid to chilled syrup just before using, or follow manufacturer's directions if using other anti-darkening products.
- PC45.** pack with sugar or syrup, or leave unsweetened (dry)

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 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 fruits and vegetables canned
- KU10.** types of machineries used in canning process and machineries used in the organisation
- KU11.** handling and maintenance of canning equipment
- KU12.** supplier/manufacturer instructions related to machineries
- KU13.** process for canning each type of fruits and vegetables
- KU14.** basic mathematics
- KU15.** calculation of raw material for required quantity of finished product
- KU16.** quality parameters, basic food microbiology and quality assessment based on physical parameters
- KU17.** The principles of food safety and hygiene, GMP and 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 effectively
- GS22.** organize all process/ equipment manuals so as to access information easily
- GS23.** support the supervisor in scheduling tasks for helper(s) customer centricity
- 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 a 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
- GS32.** analyse critical points in day-to-day tasks through experience and observation and identify control measures to solve the issue
- GS33.** plan to utilize time and equipment effectively
- GS34.** support the supervisor in scheduling tasks for helper(s)

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Dry/dehydrate ,the fruits and vegetable</i>	15	30	-	-
PC1. receive produce from the supplier/vendor	-	-	-	-
PC2. weigh and verify the quality through physical parameters such as appearance, colour, texture, maturity, etc.	-	-	-	-
PC3. transfer produce manually into the washing tank or start elevator conveyor to transfer	-	-	-	-
PC4. operate agitator and remove dirt, soil, etc., start ladder conveyor to transfer produce to washing line conveyor	-	-	-	-
PC5. spray high pressure chlorinated water and rinse with fresh water	-	-	-	-
PC6. operate sorting/inspecting line conveyor to transfer produce to inspection station	-	-	-	-
PC7. inspect visually and remove damaged, blemished and rotten fruits and discard them	-	-	-	-
PC8. operate conveyor or elevator and transfer sorted produce into peeler or corer machine and prepare lye solution for lye peeling (depending on the type of produce)	-	-	-	-
PC9. heat the lye solution in tank, observe dials and adjust controls to regulate pressure and temperature	-	-	-	-
PC10. carryout lye peeling by immersing the produce into lye peeling machine to remove the skin/membrane and drain out the excess lye solution	-	-	-	-
PC11. carryout steam peeling of produce and wash the peeled/scalded produce	-	-	-	-
PC12. operate conveyor to transfer the produce to chopper/cutter/slicer machine to slice to specified size and shape following SOP	-	-	-	-
PC13. operate conveyor to feed produce in the blanching machine	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. inspect the blanched produce visually for feel, colour, texture etc. to determine quality	-	-	-	-
PC15. pump measured quantity of water into sulphurising tank, measure chemicals mix manually or start stirrer for uniform mixing to prepare sulphur solution	-	-	-	-
PC16. load produce (only that require sulphurising) in trays for sulphur treatment	-	-	-	-
PC17. lift basket (or) start conveyor to remove sulphur from treated produce after specified time	-	-	-	-
PC18. transfer loaded trays to the drying area/yard, arrange in rows in drying area for exposure to direct sunlight, allow the produce to completely dry (drying time depends on intensity of sunlight and the type of produce)	-	-	-	-
PC19. check the dried produce to ensure complete removal of moisture	-	-	-	-
PC20. transfer dried product into scraping line or to vibrating mesh conveyor to remove any undesirable particles	-	-	-	-
PC21. transfer dried produce to finished product inspection line for hot air drying and set temperature and time for various types of produce following SOP	-	-	-	-
PC22. set control parameters of tunnel drier (in control panel of drier or in plc) Parameters: drier temperature, drying time, fan speed, air temperature, rate of air flow etc	-	-	-	-
PC23. <ul style="list-style-type: none"> • check the dried product passing out of tunnel drier through physical parameters • Parameters: colour, appearance, dryness (through feel), firmness etc 	-	-	-	-
PC24. transfer produce to the cooling area, start fans and cooling equipment and cool the dried produce	-	-	-	-
<i>Can the fruits and vegetables</i>	9	25	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC25. receive the raw material (fruits/vegetables) for canning	-	-	-	-
PC26. wash the raw material with water to remove dust, dirt and adhering surface microflora	-	-	-	-
PC27. perform sorting and grading to ensure the removal of inferior or damaged portion	-	-	-	-
PC28. perform peeling, coring and pitting: These are the primary unit operations for preparing produce for canning	-	-	-	-
PC29. perform cutting/splitting/ slicing either manually or mechanically	-	-	-	-
PC30. blanch the produce with boiling water or steam for short periods followed by immediate cooling prior to canning is called blanching	-	-	-	-
PC31. for fruits which cannot be blanched due to their delicate tissue structure treated with some chemicals to prevent oxidative browning, occurring due to exposure to oxygen during peeling and slicing	-	-	-	-
PC32. perform filling of material in cans (Tin cans are sterilized in hot water or in steam jet to remove any adhering dust or foreign matter)	-	-	-	-
PC33. perform syruing (cans are filled with hot sugar syrup (35-55%) for fruits) or brining (cans are filled with hot brine (2-10%) concentration for vegetables	-	-	-	-
PC34. Perform exhausting by removing air from the contents in the can before sealing	-	-	-	-
PC35. seaming/closing: Immediately after exhausting, the cans are sealed by using a double seamer	-	-	-	-
PC36. perform coding/Embossing of lid to identify the can once closed	-	-	-	-
PC37. perform heat processing to achieve sterilization of contents	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC38. perform cooling of the sealed cans to approximately 35-40oC to stop the cooking process and to prevent stack burning	-	-	-	-
PC39. stack the cans to allow the outer surface to dry (below 300C)	-	-	-	-
<i>Freeze the fruits and vegetable</i>	6	15	-	-
PC40. perform the treatment given prior to freezing (blanching, SO ₂ , ascorbic acid)	-	-	-	-
PC41. wash and sort fruit	-	-	-	-
PC42. discard poor-quality pieces	-	-	-	-
PC43. treat washed and sorted fruit with ascorbic acid (available at drugstores, 1 teaspoon = 3 grams) or some other treatment to prevent discoloration, particularly with apples, peaches and nectarines	-	-	-	-
PC44. add crystalline ascorbic acid to chilled syrup just before using, or follow manufacturer's directions if using other anti-darkening products.	-	-	-	-
PC45. pack with sugar or syrup, or leave unsweetened (dry)	-	-	-	-
NOS Total	30	70	-	-

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N0203
NOS Name	Carry out preservation of fruits and vegetables
Sector	Food Processing
Sub-Sector	Fruits and Vegetables
Occupation	Processing-Fruits and Vegetables
NSQF Level	3
Credits	TBD
Version	1.0
Next Review Date	NA

FIC/N9901: Implement health and safety practices at the workplace

Description

This unit is about following health and safety procedures at the workplace.

Scope

The scope covers the following :

- Ensure food safety and personal hygiene
- Follow safety measures to avoid accidents
- Follow emergency procedures
- Manage infection control

Elements and Performance Criteria

Ensure food safety and personal hygiene

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

- PC1.** follow relevant practices to avoid cross contamination at all stages of food processing operations
- PC2.** follow organisational procedures for handling items that may cause allergic reactions
- PC3.** follow Good Manufacturing Practices (GMP) at the workplace. Good Manufacturing Practices: location and layout (ergonomics), cleaning and sanitation, equipment and containers, pest control, facilities (lighting, water supply, drainage and waste disposal, air quality and ventilation), food storage, transportation, and distribution (Source: Schedule IV, FSSAI Licensing and Registration, 2011)
- PC4.** follow Good Hygiene Practices (GHP) at the workplace appropriately. Good Hygiene Practices: use of gloves, hairnets, masks, ear plugs, goggles, shoes etc; washing hands regularly; treating injuries such as cuts, boils, skin infections and grazes; preventive health check-ups ; getting vaccinated whenever required. (Source: Schedule IV, FSSAI Licensing and Registration, 2011)

Follow safety measures to avoid accidents

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

- PC5.** use protective clothing/equipment for specific tasks and work conditions
- PC6.** identify job-site hazardous work and possible causes of risk or accident at the workplace
- PC7.** deal with hazards safely and appropriately to ensure safety of self and others as per organisational protocol
- PC8.** use various types of fire extinguishers effectively
- PC9.** respond promptly and appropriately to an accident situation or medical emergency
- PC10.** provide cardio-pulmonary resuscitation (CPR) as per the requirement (e.g. cardiac arrest)

Follow emergency procedures

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

- PC11.** follow workplace emergency and evacuation procedures
- PC12.** use safe methods to free a person from electrocution

PC13. administer appropriate first aid to victims in case of cuts, bleeding, burns, choking, electric shock, poisoning etc.

Manage infection control

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

PC14. use appropriate disinfectants to disinfect the work area and equipment as per organisational protocol

PC15. ensure personal hygiene by washing hands regularly using alcohol based sanitisers and wearing personal protective equipment (PPE)

PC16. report illness of self and others to the supervisor or concerned authority

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. meaning of hazards and risks

KU2. possible causes of risk, hazard or accident in the workplace

KU3. where to find all the general health and safety equipment in the workplace

KU4. health and safety policy and procedures of the organization

KU5. health and safety hazards commonly present in the work environment

KU6. work practices and precautions used to control and prevent risks, hazards and accidents

KU7. applicable standards and regulations as listed in The Food Safety and Standards Act, 2006

KU8. importance of each personal protective equipment used such as eye protection, hard hats, gloves apron, rubber boots, etc.

KU9. importance of ensuring personal hygiene at the workplace

KU10. ways to prevent cross contamination at the workplace

KU11. importance of storing food at specified temperatures

KU12. various dangers associated with the use of electrical and other equipment

KU13. preventive and remedial actions to be taken in the case of exposure to toxic materials

KU14. various causes of fire and the ways to prevent them

KU15. techniques of using the different fire extinguishers

KU16. procedure followed for providing cardio-pulmonary resuscitation (CPR) to the affected

KU17. rescue techniques applied during a fire hazard

KU18. various types of safety signs and what they mean

KU19. workplace emergency and evacuation procedures

KU20. appropriate basic first aid treatment relevant to the condition e.g. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries

KU21. potential injuries and ill health conditions associated with incorrect manual handling

KU22. safe lifting and carrying practices

KU23. safe practices to be followed for ensuring sanitisation of self and work area

KU24. procedure for storing the sanitising materials appropriately

Generic Skills (GS)

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

- GS1.** write an accident/incident report in local language or English
- GS2.** read and comprehend basic content to read labels, charts, signages, symbols and product manuals
- GS3.** communicate with coworkers appropriately in order to clarify instructions and other issues
- GS4.** make appropriate decisions pertaining to the concerned area of work regarding the work objective, span of authority, responsibility, laid down procedure and guidelines
- GS5.** plan and organize the work schedule, work area, tools, equipment and materials for improved productivity
- GS6.** identify probable solutions to the problems in hand and evaluate them
- GS7.** seek official and authorised sources of help and guidance to resolve problems that cannot be solved at one's level of authority

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure food safety and personal hygiene</i>	7	19	-	-
PC1. follow relevant practices to avoid cross contamination at all stages of food processing operations	1	4	-	-
PC2. follow organisational procedures for handling items that may cause allergic reactions	1	4	-	-
PC3. follow Good Manufacturing Practices (GMP) at the workplace. Good Manufacturing Practices: location and layout (ergonomics), cleaning and sanitation, equipment and containers, pest control, facilities (lighting, water supply, drainage and waste disposal, air quality and ventilation), food storage, transportation, and distribution (Source: Schedule IV, FSSAI Licensing and Registration, 2011)	3	7	-	-
PC4. follow Good Hygiene Practices (GHP) at the workplace appropriately. Good Hygiene Practices: use of gloves, hairnets, masks, ear plugs, goggles, shoes etc; washing hands regularly; treating injuries such as cuts, boils, skin infections and grazes; preventive health check-ups ; getting vaccinated whenever required. (Source: Schedule IV, FSSAI Licensing and Registration, 2011)	2	4	-	-
<i>Follow safety measures to avoid accidents</i>	11	24	-	-
PC5. use protective clothing/equipment for specific tasks and work conditions	2	4	-	-
PC6. identify job-site hazardous work and possible causes of risk or accident at the workplace	2	4	-	-
PC7. deal with hazards safely and appropriately to ensure safety of self and others as per organisational protocol	2	4	-	-
PC8. use various types of fire extinguishers effectively	2	4	-	-
PC9. respond promptly and appropriately to an accident situation or medical emergency	1	4	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. provide cardio-pulmonary resuscitation (CPR) as per the requirement (e.g. cardiac arrest)	2	4	-	-
<i>Follow emergency procedures</i>	6	12	-	-
PC11. follow workplace emergency and evacuation procedures	2	4	-	-
PC12. use safe methods to free a person from electrocution	2	4	-	-
PC13. administer appropriate first aid to victims in case of cuts, bleeding, burns, choking, electric shock, poisoning etc.	2	4	-	-
<i>Manage infection control</i>	6	15	-	-
PC14. use appropriate disinfectants to disinfect the work area and equipment as per organisational protocol	3	7	-	-
PC15. ensure personal hygiene by washing hands regularly using alcohol based sanitisers and wearing personal protective equipment (PPE)	1	4	-	-
PC16. report illness of self and others to the supervisor or concerned authority	2	4	-	-
NOS Total	30	70	-	-

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N9901
NOS Name	Implement health and safety practices at the workplace
Sector	Food Processing
Sub-Sector	Generic
Occupation	Generic
NSQF Level	3
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2024
NSQC Clearance Date	24/02/2022

FIC/N9902: Work effectively in an organisation

Description

This unit is about working effectively with others.

Scope

The scope covers the following :

- Communicate effectively
- Work in a team effectively
- Respect diversity

Elements and Performance Criteria

Communicate effectively

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

- PC1.** obtain complete information and instructions from designated personnel
- PC2.** reciprocate understanding and seek clarifications whenever required
- PC3.** provide information accurately and clearly
- PC4.** use inclusive language (verbal, non-verbal and written) that is gender, disability and culturally sensitive

Work in a team effectively

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

- PC5.** plan tasks to be performed as per priority and need
- PC6.** consult with and assist others to maximize effectiveness and efficiency at work
- PC7.** escalate problems and grievances beyond own scope to the concerned authority
- PC8.** take appropriate action to resolve conflicts at the workplace

Respect diversity

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

- PC9.** maintain a gender-neutral behaviour with everyone at the workplace
- PC10.** empathise with People with Disabilities (PwD) and offer help, if required
- PC11.** recognise and report incidents of harassment and discrimination to appropriate authority

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** organizational quality procedures and processes associated with work
- KU2.** standards, policies, and procedures followed in the organization relevant to employment, harassment, discrimination and performance conditions
- KU3.** reporting structure, inter-dependent functions, lines, and procedures applicable at the workplace

- KU4.** different types of harassment and discrimination based on gender, disability, caste, religion, and culture
- KU5.** components of effective communication and its importance
- KU6.** importance of teamwork in organizational and individual success
- KU7.** importance of ethics and discipline for professional success
- KU8.** how to express and address grievances appropriately and effectively
- KU9.** importance and ways of managing interpersonal conflict effectively
- KU10.** different types of disabilities and the challenges faced by persons with disability (PwD)
- KU11.** laws, acts and provisions defined for PwD
- KU12.** importance of gender sensitivity and equality
- KU13.** legislations, grievance redressal mechanisms, and penalties against harassment in the workplace

Generic Skills (GS)

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

- GS1.** communicate information, doubts and concerns about work related matters in local language or Hindi/English
- GS2.** read and interpret information given in local language or Hindi/English
- GS3.** establish priorities and deadlines in consultation with other and record them
- GS4.** be punctual
- GS5.** listen to others concerns and doubts carefully and address them
- GS6.** be courteous

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Communicate effectively</i>	8	13	-	-
PC1. obtain complete information and instructions from designated personnel	2	3	-	-
PC2. reciprocate understanding and seek clarifications whenever required	2	3	-	-
PC3. provide information accurately and clearly	2	3	-	-
PC4. use inclusive language (verbal, non-verbal and written) that is gender, disability and culturally sensitive	2	4	-	-
<i>Work in a team effectively</i>	8	14	-	-
PC5. plan tasks to be performed as per priority and need	2	4	-	-
PC6. consult with and assist others to maximize effectiveness and efficiency at work	2	3	-	-
PC7. escalate problems and grievances beyond own scope to the concerned authority	2	3	-	-
PC8. take appropriate action to resolve conflicts at the workplace	2	4	-	-
<i>Respect diversity</i>	6	12	-	-
PC9. maintain a gender-neutral behaviour with everyone at the workplace	2	4	-	-
PC10. empathise with People with Disabilities (PWD) and offer help, if required	2	4	-	-
PC11. recognise and report incidents of harassment and discrimination to appropriate authority	2	4	-	-
NOS Total	22	39	-	-

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N9902
NOS Name	Work effectively in an organisation
Sector	Food Processing
Sub-Sector	Generic
Occupation	Generic
NSQF Level	3
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	18/06/2026
NSQ Clearance Date	24/02/2022

SGJ/N1702: Optimize resource utilization at workplace

Description

This unit is about adopting sustainable practices and optimizing use of resources, especially material, energy and waste, in day-to-day operations at work

Scope

The scope covers the following :

- Material conservation practices
- Energy/electricity conservation practices
- Effective waste management/recycling practices

Elements and Performance Criteria

Material conservation practices

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

- PC1.** identify ways to optimize usage of material including water in various tasks/activities/processes
- PC2.** check for spills/leakages in various tasks/activities/processes
- PC3.** plug spills/leakages and escalate to appropriate authority if unable to rectify
- PC4.** carry out routine cleaning of tools, machines and equipment

Energy/electricity conservation practices

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

- PC5.** identify ways to optimize usage of electricity/energy in various tasks/activities/processes
- PC6.** check if the equipment/machine is functioning normally before commencing work and rectify wherever required
- PC7.** report malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment
- PC8.** ensure electrical equipment and appliances are properly connected and turned off when not in use

Effective waste management/recycling practices

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

- PC9.** identify recyclable and non-recyclable, and hazardous waste generated
- PC10.** segregate waste into different categories
- PC11.** dispose non-recyclable waste appropriately
- PC12.** deposit recyclable and reusable material at identified location
- PC13.** follow processes specified for disposal of hazardous waste

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** potential hazards, risks and threats based on the nature of work
- KU2.** layout of the workstation and electrical and thermal equipment used
- KU3.** organizations procedures for minimizing waste
- KU4.** efficient and inefficient utilization of material and water
- KU5.** ways of efficiently managing material and water in the process
- KU6.** basics of electricity and prevalent energy efficient devices
- KU7.** ways to recognize common electrical problems
- KU8.** common practices of conserving electricity
- KU9.** usage of different colours of dustbins
- KU10.** categorization of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics
- KU11.** waste management and methods of waste disposal
- KU12.** common sources of pollution and ways to minimize it

Generic Skills (GS)

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

- GS1.** record data on waste disposal at workplace
- GS2.** complete statutory documents relevant to safety and hygiene
- GS3.** read Standard Operating Practices (SOP) documents
- GS4.** communicate with colleagues on the significance of greening of jobs
- GS5.** make timely decisions for efficient utilization of resources
- GS6.** complete tasks efficiently and accurately within stipulated time
- GS7.** work with supervisors/team members to carry out work related tasks
- GS8.** identify cause and effect of greening of jobs

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Material conservation practices</i>	4	8	-	-
PC1. identify ways to optimize usage of material including water in various tasks/activities/processes	1	2	-	-
PC2. check for spills/leakages in various tasks/activities/processes	1	2	-	-
PC3. plug spills/leakages and escalate to appropriate authority if unable to rectify	1	2	-	-
PC4. carry out routine cleaning of tools, machines and equipment	1	2	-	-
<i>Energy/electricity conservation practices</i>	4	8	-	-
PC5. identify ways to optimize usage of electricity/energy in various tasks/activities/processes	1	2	-	-
PC6. check if the equipment/machine is functioning normally before commencing work and rectify wherever required	1	2	-	-
PC7. report malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment	1	2	-	-
PC8. ensure electrical equipment and appliances are properly connected and turned off when not in use	1	2	-	-
<i>Effective waste management/recycling practices</i>	5	10	-	-
PC9. identify recyclable and non-recyclable, and hazardous waste generated	1	2	-	-
PC10. segregate waste into different categories	1	2	-	-
PC11. dispose non-recyclable waste appropriately	1	2	-	-
PC12. deposit recyclable and reusable material at identified location	1	2	-	-
PC13. follow processes specified for disposal of hazardous waste	1	2	-	-
NOS Total	13	26	-	-

National Occupational Standards (NOS) Parameters

NOS Code	SGJ/N1702
NOS Name	Optimize resource utilization at workplace
Sector	Green Jobs
Sub-Sector	Other Green Jobs
Occupation	Resource Optimization
NSQF Level	3
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2026
NSQC Clearance Date	24/02/2022

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each 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 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 centre (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
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/N9026.Prepare for production	30	70	-	-	100	25
FIC/N0203.Carry out preservation of fruits and vegetables	30	70	-	-	100	35
FIC/N9901.Implement health and safety practices at the workplace	30	70	-	-	100	15
FIC/N9902.Work effectively in an organisation	22	39	-	-	61	15
SGJ/N1702.Optimize resource utilization at workplace	13	26	-	-	39	10
Total	125	275	-	-	400	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.