# Ice Cream Processing Technician

QP Code: FIC/Q2004

Version: 3.0

NSQF Level: 4

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

# Contents

# FIC/Q2004: Ice Cream Processing Technician

## Brief Job Description

An Ice Cream Processing Technician is responsible for producing ice cream by operating various ice cream processing machineries. S/he is responsible for homogenizing, pasteurizing, freezing, cutting, hardening, storing, filling and packing following specifications and standards of the organisation.

## Personal Attributes

An Ice Cream Processing Technician must have the the ability to plan, organize, prioritize, calculate, concentrate and handle pressure. The individual must possess reading, writing and communication skills. In addition, the individual must have mechanical aptitude and trouble shooting skills.

## Applicable National Occupational Standards (NOS)

### Compulsory NOS:

1. FIC/N2013: Prepare and maintain work area and process machineries for production of ice cream

2. FIC/N2014: Prepare for production of ice cream

3. FIC/N2015: Produce ice cream

4. FIC/N2016: Complete documentation and record keeping related to production of ice cream

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

6. DGT/VSQ/N0101: Employability Skills (30 Hours)

## Qualification Pack (QP) Parameters

| Sector | Food Processing |
|---|---|
| Sub-Sector | Dairy Products |
| Occupation | Processing-Dairy Products |
| Country | India |
| NSQF Level | 4 |
| Credits | 11 |

| Aligned to NCO/ISCO/ISIC Code | NCO-2004/7413.50 |
|---|---|
| Minimum Educational Qualification & Experience | 11th grade pass<br>  OR<br>Completed 1st year of 3-year diploma (after 10th) and pursuing regular diploma<br>  OR<br>10th grade pass plus 1-year NTC/ NAC<br>  OR<br>10th grade pass with 2 Years of experience relevant experience<br>  OR<br>Previous relevant Qualification of NSQF Level (3) with 2 Years of experience relevant experience<br>  OR<br>Previous relevant Qualification of NSQF Level (3.5) with 1 Year of experience relevant experience |
| Minimum Level of Education for Training in School | 10th Class |
| Pre-Requisite License or Training | 1. Food standards and regulations2. Operating different types of dairy processing equipments3. Packaging technology4. GMP5. HACCP6. QMS7. Computer basics and ERP system followed by theorganization8. Training in Food Safety Standards and Regulations (as perFSSAI) (Mandatory) |
| Minimum Job Entry Age | 18 Years |
| Last Reviewed On | NA |
| Next Review Date | 29/07/2024 |
| NSQC Approval Date | 29/07/2021 |
| Version | 3.0 |
| Reference code on NQR | 2022/FI/FICSI/06688 |
| NQR Version | 2 |

**Remarks:**

| Nil |
|---|

# FIC/N2013: Prepare and maintain work area and process machineries for production of ice cream

## Description

This unit is about preparation of work area to ensure hygiene and safety of work area, ensure performance, efficiency and maintenance of process machineries and tools for production of ice cream, considering the specifications and standards of the organization.

## Elements and Performance Criteria

*Prepare and maintain work area (for production of ice cream)*

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 work area is safe and hygienic for food processing

**PC3.** dispose waste materials as per organisation standards and industry requirements

*Prepare and maintain processmachineries and tools (for production of ice cream)*

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

**PC4.** check the working and performance of all machineries and equipments used for process such as homogenizer, pasteurizer, heat exchanger, packaging machines, etc.

**PC5.** clean the machineries and tools used with recommended sanitizers following specifications and organisation standards

**PC6.** place the necessary tools required for process

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

**PC8.** select and set the machines and tools 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 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 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 ice cream)* | **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 work area is safe and hygienic for food processing | 3 | 7 | - | - |
| **PC3.** dispose waste materials as per organisation standards and industry requirements | 5 | 10 | - | - |
| *Prepare and maintain processmachineries and tools (for production of ice cream)* | **17** | **33** | - | - |
| **PC4.** check the working and performance of all machineries and equipments used for process such as homogenizer, pasteurizer, heat exchanger, packaging machines, etc. | 5 | 10 | - | - |
| **PC5.** clean the machineries and tools used with recommended sanitizers following specifications and organisation standards | 5 | 10 | - | - |
| **PC6.** place the necessary tools required for process | 2 | 3 | - | - |
| **PC7.** attend minor repairs/faults of all machines, if required | 2.5 | 5 | - | - |
| **PC8.** select and set the machines and tools required | 2.5 | 5 | - | - |
| **NOS Total** | **35** | **65** | **-** | **-** |

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | FIC/N2013 |
| **NOS Name** | Prepare and maintain work area and process machineries for production of ice cream |
| **Sector** | Food Processing |
| **Sub-Sector** | Dairy Products |
| **Occupation** | Processing |
| **NSQF Level** | 4 |
| **Credits** | TBD |
| **Version** | 1.0 |
| **Last Reviewed Date** | 29/07/2021 |
| **Next Review Date** | 29/07/2024 |
| **NSQC Clearance Date** | 29/07/2021 |

# FIC/N2014: Prepare for production of ice cream

## Description

This unit is about preparation for production of ice cream through planning production, machinery utilization and organizing and checking equipments and raw material for carrying out production.

## Elements and Performance Criteria

*Provide support in production planning (for production of ice cream)*

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

**PC1.** read and understand the production order from the supervisor

**PC2.** check the availability of raw materials, packaging materials, equipment and manpower

**PC3.** support in planning production sequence by selecting products that does not impact the quality of the other avoiding CIP after each product using the same equipment and machinery for various products planning maximum capacity utilization of machineries considering the process time for each product planning efficient utilization of resources/manpower prioritizing urgent orders

**PC4.** calculate the batch size based on the production order and machine capacity

**PC5.** calculate the raw material requirement (considering the process loss) to produce the required quantity of finished product(s)

**PC6.** calculate the raw materials (including ingredients), packaging materials and manpower requirement for the completing the order

*Plan equipment utilization (for production of ice cream )*

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

**PC7.** read and understand the production order from the supervisor

**PC8.** ensure working and performance of all machineries required for process

**PC9.** report supervisor on any malfunctions of machine

**PC10.** calculate the process time for effective utilization of machineries and manpower

**PC11.** allot responsibilities/ work to the assistants and helpers

*Organize and check equipments and raw material for carrying out production (for production of ice cream)*

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

**PC12.** refer process chart/ product flow chart/formulation chart for product(s) produced

**PC13.** weigh the raw materials and ingredients required for the batch

**PC14.** check the conformance of raw material by verifying the quality analysis report and assessing its physical parameters

**PC15.** connect pipes between holding tanks and process equipment

**PC16.** assemble fittings, valves, bowls, impeller shaft, strainers and other parts to equipment to prepare for production

**PC17.** start machine and check the working condition and performance of the machine

**PC18.** make minor adjustments and repairs (if required)

**PC19.** keep the tools accessible to attend repairs/faults in case of breakdown

## 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 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 and various types of ice cream
**KU10.** types of machineries used for processing each type ice cream
**KU11.** various machineries used in the organisation
**KU12.** maintenance of each process equipments
**KU13.** supplier/manufacturer instructions related to machineries
**KU14.** handling all processing machineries
**KU15.** basic mathematics
**KU16.** quality parameters, basic food microbiology and quality assessment based on physical parameters
**KU17.** cleaning procedures such as CIP and COP
**KU18.** knowledge on sanitizers and disinfectants and its handling and storing methods
**KU19.** food laws and regulations on product, packaging and labelling
**KU20.** food safety and hygiene
**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 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 |
|---|---|---|---|---|
| *Provide support in production planning (for production of ice cream)* | **17** | **28** | **-** | **-** |
| **PC1.** read and understand the production order from the supervisor | 4 | 6 | - | - |
| **PC2.** check the availability of raw materials, packaging materials, equipment and manpower | 2 | 3 | - | - |
| **PC3.** support in planning production sequence by selecting products that does not impact the quality of the other avoiding CIP after each product using the same equipment and machinery for various products planning maximum capacity utilization of machineries considering the process time for each product planning efficient utilization of resources/manpower prioritizing urgent orders | 5 | 10 | - | - |
| **PC4.** calculate the batch size based on the production order and machine capacity | 2 | 3 | - | - |
| **PC5.** calculate the raw material requirement (considering the process loss) to produce the required quantity of finished product(s) | 2 | 3 | - | - |
| **PC6.** calculate the raw materials (including ingredients), packaging materials and manpower requirement for the completing the order | 2 | 3 | - | - |
| *Plan equipment utilization (for production of ice cream )* | **7.5** | **17.5** | **-** | **-** |
| **PC7.** read and understand the production order from the supervisor | 2 | 5 | - | - |
| **PC8.** ensure working and performance of all machineries required for process | 2 | 5 | - | - |
| **PC9.** report supervisor on any malfunctions of machine | 1 | 2 | - | - |
| **PC10.** calculate the process time for effective utilization of machineries and manpower | 1 | 2 | - | - |
| **PC11.** allot responsibilities/ work to the assistants and helpers | 1.5 | 3.5 | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| *Organize and check equipments and raw material for carrying out production (for production of ice cream)* | **10.5** | **19.5** | **-** | **-** |
| **PC12.** refer process chart/ product flow chart/formulation chart for product(s) produced | 0.5 | 1.5 | - | - |
| **PC13.** weigh the raw materials and ingredients required for the batch | 0.5 | 1.5 | - | - |
| **PC14.** check the conformance of raw material by verifying the quality analysis report and assessing its physical parameters | 2 | 3 | - | - |
| **PC15.** connect pipes between holding tanks and process equipment | 2 | 3 | - | - |
| **PC16.** assemble fittings, valves, bowls, impeller shaft, strainers and other parts to equipment to prepare for production | 1 | 4 | - | - |
| **PC17.** start machine and check the working condition and performance of the machine | 2 | 3 | - | - |
| **PC18.** make minor adjustments and repairs (if required) | 2 | 3 | - | - |
| **PC19.** keep the tools accessible to attend repairs/faults in case of breakdown | 0.5 | 0.5 | - | - |
| **NOS Total** | **35** | **65** | **-** | **-** |

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | FIC/N2014 |
| **NOS Name** | Prepare for production of ice cream |
| **Sector** | Food Processing |
| **Sub-Sector** | Dairy Products |
| **Occupation** | Processing |
| **NSQF Level** | 4 |
| **Credits** | TBD |
| **Version** | 1.0 |
| **Last Reviewed Date** | 29/07/2021 |
| **Next Review Date** | 29/07/2024 |
| **NSQC Clearance Date** | 29/07/2021 |

# FIC/N2015: Produce ice cream

## Description

This unit is about operating various ice-cream processing machineries to produce ice-cream as per the specifications and standards of the organization.

## Elements and Performance Criteria

### Prepare ice cream mix

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

**PC1.** sterilize the processing equipments before process by opening valves or pumping recommended sterilizing solution and rinse water through pipes

**PC2.** check the quality of raw materials through physical parameters by verifying the quality report

**PC3.** set and control metering devices or open valves or start pump to allow measured quantity of liquid ingredient into the mixing tank following the SOP

**PC4.** adjust valves to control the speed of agitators to mix liquid ingredients

**PC5.** weigh the dry ingredients like skim milk powder, sugar, emulsifiers, stabilizers, etc required for the batch and pre blend, and add into the liquid ingredients in the mixing tank following the SOP

**PC6.** control the speed of agitators and set timer to mix dry and wet ingredients to make ice-cream mix

### Pasteurize and age ice-cream mix

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

**PC7.** pump ice-cream mixture into the pasteurization tank

**PC8.** turn valves to admit steam and control steam pressure by adjusting valves to heat ice-cream mixture in the pasteurization tank, set and control time and speed of the agitator in the pasteurization tank to stir the ice-cream mixture

**PC9.** open valves to transfer the pasteurized ice cream mix into the homogenizer, turn valves to admit steam and control pressure of the homogenizer to homogenize mixture at high pressure to break fat globules in mixture and obtain smooth texture

**PC10.** open valves to pass the homogenized mixture into heat exchangers for cooling

**PC11.** turn valves of the coolant pipes to pass coolant (like refrigerated water, glycol etc) to cool the homogenized mixture

**PC12.** transfer the cooled homogenized mixture into refrigerated storage tank for ageing to improve whipping qualities, body and texture of ice cream, control and maintain time and temperature of the refrigerated storage tank during ageing process

**PC13.** measure required quantity of flavour and colour in the flavour tank and start the pump to transfer flavour and colour into the aged mixture in the refrigerated storage tank

### Freeze, pack and store ice cream mix

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

**PC14.** open valve and pass the flavoured homogenized mixture into the dynamic freezer, and turn valves of the coolant pipes of the dynamic freezer to pass refrigerant to cool the mixture to achieve required freezing temperature

**PC15.** adjust and control the speed of whipper blades in the freezer to whip ice-cream mixture to incorporate air and to convert liquid mixture to soft and smooth solid of soft serve ice-cream

**PC16.** check the quality of the ice cream through physical parameters like colour, appearance, flavour, texture, taste etc

**PC17.** measure coating ingredients (such as chocolate, fruit juice, color, water, flavor, sugar, acid, stabilizers etc) to prepare coating material for frozen ice-cream, start pump to transfer the coating ingredients into the enrobing tank, turn steam valves to heat contents in the enrobing tank to specified temperature to prepare ice-cream coating material

**PC18.** measure centre filling ingredients such as chocolate, fruits, nuts, color, flavor, sugar, stabilizers etc, and prepare centre filling material following sop, start pump or manually transfer centre filling material into the centre filling machine

**PC19.** set the ice-cream packaging machine for filling volume, start the packaging machine to fill soft serve ice-cream directly from the freezer into cone or other packaging materials like plastic/laminated paper containers

**PC20.** position the filler of the centre filling machine, set the filling quantity , and start machine to inject the filling material into the centre of the ice-cream in cone/cup/containers (for centre filled ice-cream)

**PC21.** pack the primary packed ice-cream in cartons and transfer the cartons to hardening room for hardening ice cream, and maintain the temperature of the hardening room following the SOP (batch process)

**PC22.** transfer the hardened ice-cream into frozen storage area and maintain storage temperature

**PC23.** start the packaging machine to fill measured quantity of ice-cream in liquid form into the moulds, start machine to insert stick into the moulded ice-cream, maintain required temperature to harden ice-cream, start machine that pass hardened ice-cream over the enrobing tank and dip ice cream in the coating material (for coated ice-creams)

**PC24.** insert forming fixtures in nozzles of ice cream feed lines that extrude specified shape of ice cream like bar, roll, swirl shape etc, load sticks to insert into icecream, and start machine that cut extruded ice-cream ribbon into measured portions

**PC25.** start machines that deposit ice-cream on conveyor belts moving through hardening tunnels or spiral freezers for hardening the ice-cream quickly to minimize ice crystal size and stabilize the foam (continuous process)

**PC26.** turn valves and set thermostat to circulate refrigerant and maintain specified temperature in hardening tunnel or spiral freezer

**PC27.** observe deposited ice-cream bars in hardening tunnels or spiral freezers, control and maintain speed of the conveyor and depositing machine, and temperature of the hardening tunnel or spiral freezer

**PC28.** adjust setting and start the packaging machine to wrap/pack the ice-cream in primary packaging material, pack the wrapped/ primary packed ice-cream in cartons

**PC29.** sample finished product and transfer to quality lab for analysis and conformance to standards

**PC30.** transfer the cartons to storage area and maintain storage temperature

**PC31.** report malfunction/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:

**PC32.** turn valves or pump recommended sterilizing solution and rinse water through pipes for cip(clean-in-place) of tanks and processing equipment following SOP

**PC33.** clean the work area using recommended cleaning agents and sanitizers

**PC34.** attend minor repairs/faults of all machines (if any)

**PC35.** ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the SOP or 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 of raw materials and various types of ice cream

**KU10.** various types of ingredients used for producing ice cream

**KU11.** types of machineries used for processing various types of ice cream

**KU12.** various machineries used in the organisation

**KU13.** maintenance of each process equipments

**KU14.** supplier/manufacturer instructions related to machineries

**KU15.** handling all processing machineries

**KU16.** process and process parameters for production of various product

**KU17.** basic mathematics

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

**KU19.** cleaning procedures such as CIP and COP

**KU20.** knowledge on sanitizers and disinfectants and its 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 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 ice cream mix* | **7** | **13** | **-** | **-** |
| **PC1.** sterilize the processing equipments before process by opening valves or pumping recommended sterilizing solution and rinse water through pipes | 0.5 | 1.5 | - | - |
| **PC2.** check the quality of raw materials through physical parameters by verifying the quality report | 1 | 1 | - | - |
| **PC3.** set and control metering devices or open valves or start pump to allow measured quantity of liquid ingredient into the mixing tank following the SOP | 2 | 3 | - | - |
| **PC4.** adjust valves to control the speed of agitators to mix liquid ingredients | 1 | 2 | - | - |
| **PC5.** weigh the dry ingredients like skim milk powder, sugar, emulsifiers, stabilizers, etc required for the batch and pre blend, and add into the liquid ingredients in the mixing tank following the SOP | 2 | 4 | - | - |
| **PC6.** control the speed of agitators and set timer to mix dry and wet ingredients to make ice-cream mix | 0.5 | 1.5 | - | - |
| *Pasteurize and age ice-cream mix* | **8** | **12** | **-** | **-** |
| **PC7.** pump ice-cream mixture into the pasteurization tank | 0.5 | 0.5 | - | - |
| **PC8.** turn valves to admit steam and control steam pressure by adjusting valves to heat ice-cream mixture in the pasteurization tank, set and control time and speed of the agitator in the pasteurization tank to stir the ice-cream mixture | 2 | 3 | - | - |
| **PC9.** open valves to transfer the pasteurized ice cream mix into the homogenizer, turn valves to admit steam and control pressure of the homogenizer to homogenize mixture at high pressure to break fat globules in mixture and obtain smooth texture | 2 | 3 | - | - |
| **PC10.** open valves to pass the homogenized mixture into heat exchangers for cooling | 0.5 | 0.5 | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **PC11.** turn valves of the coolant pipes to pass coolant (like refrigerated water, glycol etc) to cool the homogenized mixture | 0.5 | 0.5 | - | - |
| **PC12.** transfer the cooled homogenized mixture into refrigerated storage tank for ageing to improve whipping qualities, body and texture of ice cream, control and maintain time and temperature of the refrigerated storage tank during ageing process | 2 | 3 | - | - |
| **PC13.** measure required quantity of flavour and colour in the flavour tank and start the pump to transfer flavour and colour into the aged mixture in the refrigerated storage tank | 0.5 | 1.5 | - | - |
| *Freeze, pack and store ice cream mix* | **17** | **33** | **-** | **-** |
| **PC14.** open valve and pass the flavoured homogenized mixture into the dynamic freezer, and turn valves of the coolant pipes of the dynamic freezer to pass refrigerant to cool the mixture to achieve required freezing temperature | 0.5 | 1.5 | - | - |
| **PC15.** adjust and control the speed of whipper blades in the freezer to whip ice-cream mixture to incorporate air and to convert liquid mixture to soft and smooth solid of soft serve ice-cream | 0.5 | 1.5 | - | - |
| **PC16.** check the quality of the ice cream through physical parameters like colour, appearance, flavour, texture, taste etc | 1 | 1 | - | - |
| **PC17.** measure coating ingredients (such as chocolate, fruit juice, color, water, flavor, sugar, acid, stabilizers etc) to prepare coating material for frozen ice-cream, start pump to transfer the coating ingredients into the enrobing tank, turn steam valves to heat contents in the enrobing tank to specified temperature to prepare ice-cream coating material | 2 | 3 | - | - |
| **PC18.** measure centre filling ingredients such as chocolate, fruits, nuts, color, flavor, sugar, stabilizers etc, and prepare centre filling material following sop, start pump or manually transfer centre filling material into the centre filling machine | 2 | 3 | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **PC19.** set the ice-cream packaging machine for filling volume, start the packaging machine to fill soft serve ice-cream directly from the freezer into cone or other packaging materials like plastic/laminated paper containers | 1 | 2 | - | - |
| **PC20.** position the filler of the centre filling machine, set the filling quantity , and start machine to inject the filling material into the centre of the ice-cream in cone/cup/containers (for centre filled ice-cream) | 1 | 2 | - | - |
| **PC21.** pack the primary packed ice-cream in cartons and transfer the cartons to hardening room for hardening ice cream, and maintain the temperature of the hardening room following the SOP (batch process) | 1 | 2 | - | - |
| **PC22.** transfer the hardened ice-cream into frozen storage area and maintain storage temperature | 0.5 | 1.5 | - | - |
| **PC23.** start the packaging machine to fill measured quantity of ice-cream in liquid form into the moulds, start machine to insert stick into the moulded ice-cream, maintain required temperature to harden ice-cream, start machine that pass hardened ice-cream over the enrobing tank and dip ice cream in the coating material (for coated ice-creams) | 2 | 3 | - | - |
| **PC24.** insert forming fixtures in nozzles of ice cream feed lines that extrude specified shape of ice cream like bar, roll, swirl shape etc, load sticks to insert into icecream, and start machine that cut extruded ice-cream ribbon into measured portions | 1 | 2 | - | - |
| **PC25.** start machines that deposit ice-cream on conveyor belts moving through hardening tunnels or spiral freezers for hardening the ice-cream quickly to minimize ice crystal size and stabilize the foam (continuous process) | 1 | 4 | - | - |
| **PC26.** turn valves and set thermostat to circulate refrigerant and maintain specified temperature in hardening tunnel or spiral freezer | 1 | 2 | - | - |
| **PC27.** observe deposited ice-cream bars in hardening tunnels or spiral freezers, control and maintain speed of the conveyor and depositing machine, and temperature of the hardening tunnel or spiral freezer | 0.5 | 1.5 | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **PC28.** adjust setting and start the packaging machine to wrap/pack the ice-cream in primary packaging material, pack the wrapped/ primary packed ice-cream in cartons | 0.5 | 1.5 | - | - |
| **PC29.** sample finished product and transfer to quality lab for analysis and conformance to standards | 0.5 | 0.5 | - | - |
| **PC30.** transfer the cartons to storage area and maintain storage temperature | 0.5 | 0.5 | - | - |
| **PC31.** report malfunction/discrepancies/concerns to department supervisor for immediate action | 0.5 | 0.5 | - | - |
| *Post production cleaning and regular maintenance of equipments* | **3** | **7** | - | - |
| **PC32.** turn valves or pump recommended sterilizing solution and rinse water through pipes for cip(clean-in-place) of tanks and processing equipment following SOP | 1 | 3 | - | - |
| **PC33.** clean the work area using recommended cleaning agents and sanitizers | 0.5 | 1.5 | - | - |
| **PC34.** attend minor repairs/faults of all machines (if any) | 0.5 | 1.5 | - | - |
| **PC35.** ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the SOP or suppliers instructions/manuals | 1 | 1 | - | - |
| **NOS Total** | **35** | **65** | - | - |

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | FIC/N2015 |
| **NOS Name** | Produce ice cream |
| **Sector** | Food Processing |
| **Sub-Sector** | Dairy Products |
| **Occupation** | Processing |
| **NSQF Level** | 4 |
| **Credits** | TBD |
| **Version** | 1.0 |
| **Last Reviewed Date** | 29/07/2021 |
| **Next Review Date** | 29/07/2024 |
| **NSQC Clearance Date** | 29/07/2021 |

# FIC/N2016: Complete documentation and record keeping related to production of ice cream

## Description

This unit is about documenting and maintaining records of raw material, process and finished products, related to production of ice cream

## Elements and Performance Criteria

*Document and maintain records of raw material (for production of ice cream)*

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

**PC1.** document and maintain records of raw material such as type of raw materials, supplier details, receiving date/ date of manufacture, expiry date, quality parameters for all raw materials, internal quality analysis report, storage condition etc, as per company standards

**PC2.** maintain record of observations (if any) related to raw 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 and process parameters (for production of ice cream)*

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

**PC5.** document production details such as products handled, production sequence, equipments and machinery details, efficiency and capacity utilization of equipment etc

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

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

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

**PC9.** load the production 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 offinished products (for production of icecream)*

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

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

**PC12.** document the finished products details such as name of the product, 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.** maintain record on 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 such as production chart, process chart and finished products chart
**KU10.** details to be recorded and maintained of raw materials and finished products
**KU11.** details to be recorded and maintained of production plan and process parameters
**KU12.** methods to document and maintain records of observations (if any) related to raw materials, process and finished products
**KU13.** methods to track back the record from finished product to raw material
**KU14.** entering the details in 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 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 |
|---|---|---|---|---|
| *Document and maintain records of raw material (for production of ice cream)* | **15** | **10** | **-** | **-** |
| **PC1.** document and maintain records of raw material such as type of raw materials, supplier details, receiving date/ date of manufacture, expiry date, quality parameters for all raw materials, internal quality analysis report, storage condition etc, as per company standards | 6 | 4 | - | - |
| **PC2.** maintain record of observations (if any) related to raw 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 and process parameters (for production of ice cream)* | **30** | **20** | **-** | **-** |
| **PC5.** document production details such as products handled, production sequence, equipments and machinery details, efficiency and capacity utilization of equipment etc | 6 | 4 | - | - |
| **PC6.** document process details such as type or raw material used, process parameters like temperature, time, pressure etc (as applicable) for entire production in process chart or production log for all products produced | 9 | 6 | - | - |
| **PC7.** document batch size, production yield, and wastage of raw materials, energy utilization and final products produced | 6 | 4 | - | - |
| **PC8.** maintain record on observations (if any) or deviations related to production and process | 3 | 2 | - | - |
| **PC9.** load the production and process details in ERP for future reference | 3 | 2 | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **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 offinished products (for production of icecream)* | **15** | **10** | **-** | **-** |
| **PC11.** document and maintain records on the types of finished products produced | 2 | 1 | - | - |
| **PC12.** document the finished products details such as name of the product, 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.** maintain record on 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/N2016 |
| **NOS Name** | Complete documentation and record keeping related to production of ice cream |
| **Sector** | Food Processing |
| **Sub-Sector** | Dairy Products |
| **Occupation** | Processing |
| **NSQF Level** | 4 |
| **Credits** | TBD |
| **Version** | 1.0 |
| **Last Reviewed Date** | 29/07/2021 |
| **Next Review Date** | 29/07/2024 |
| **NSQC Clearance Date** | 29/07/2021 |

# 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** | **-** | **-** |

## 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 |

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

## Description

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

## Scope

The scope covers the following :

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

## Elements and Performance Criteria

### Introduction to Employability Skills

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

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

### Constitutional values – Citizenship

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

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

### Becoming a Professional in the 21st Century

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

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

### Basic English Skills

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

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

### Communication Skills

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

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

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

*Diversity & Inclusion*

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

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

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

*Financial and Legal Literacy*

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

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

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

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

*Essential Digital Skills*

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

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

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

*Entrepreneurship*

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

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

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

*Customer Service*

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

**PC16.**  identify different types of customers

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

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

*Getting ready for apprenticeship & Jobs*

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

**PC19.**  create a basic biodata

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

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

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

**KU1.**  need for employability skills

**KU2.**  various constitutional and personal values

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

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

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

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

**KU7.**  inclusivity and its importance

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

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

**KU10.** how to compute income and expenses

**KU11.** importance of maintaining safety and security in financial transactions

**KU12.** different legal rights and laws

**KU13.** how to operate digital devices and applications safely and securely

**KU14.** ways to identify business opportunities

**KU15.** types of customers and their needs

**KU16.** how to apply for a job and prepare for an interview

**KU17.** apprenticeship scheme and the process of registering on apprenticeship portal

## Generic Skills (GS)

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

**GS1.** communicate effectively using appropriate language

**GS2.** behave politely and appropriately with all

**GS3.** perform basic calculations

**GS4.** solve problems effectively

**GS5.** be careful and attentive at work

**GS6.** use time effectively

**GS7.** maintain hygiene and sanitisation to avoid infection

## Assessment Criteria

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

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

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | DGT/VSQ/N0101 |
| **NOS Name** | Employability Skills (30 Hours) |
| **Sector** | Cross Sectoral |
| **Sub-Sector** | Professional Skills |
| **Occupation** | Employability |
| **NSQF Level** | 2 |
| **Credits** | 1 |
| **Version** | 1.0 |
| **Last Reviewed Date** | 23/06/2023 |
| **Next Review Date** | 23/06/2026 |
| **NSQC Clearance Date** | 23/06/2023 |

## 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/N2013.Prepare and maintain work area and process machineries for production of ice cream | 35 | 65 | - | - | 100 | 20 |
| FIC/N2014.Prepare for production of ice cream | 35 | 65 | - | - | 100 | 25 |
| FIC/N2015.Produce ice cream | 35 | 65 | - | - | 100 | 30 |
| FIC/N2016.Complete documentation and record keeping related to production of ice cream | 60 | 40 | - | - | 100 | 10 |
| FIC/N9001.Ensure food safety, hygiene and sanitation for processing food products | 35 | 65 | - | - | 100 | 10 |
| DGT/VSQ/N0101.Employability Skills (30 Hours) | 20 | 30 | 0 | 0 | 50 | 5 |
| **Total** | **220** | **330** | **0** | **0** | **550** | **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. |