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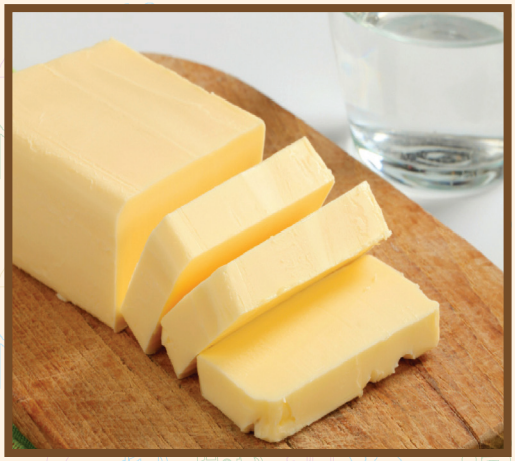
Food Industry Capacity and Skill Initiative

Facilitator Guide



Sector
Food Processing

Sub-Sector
Dairy Products

Occupation
Processing- Dairy Products

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Butter and Ghee Processing Operator

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> Skilling is building a better India. If we have to move India towards development then Skill Development should be our mission.

Shri Narendra Modi
Prime Minister of India

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The preparation of this participant Handbook would not have been possible without the support of the Food Processing Industries. The Industry feedback has been extremely encouraging from inception to conclusion & it is with their inputs that we have tried to bridge the skill gaps existing today in the Industry.

This participant handbook is dedicated to all the aspiring youth who desire to achieve special skills which would be a lifelong asset for their future endeavors and help them make a bright career in the Food Processing Sector.

About this Guide

The Facilitator Guide for Butter and Ghee Processing Operator has been developed to guide the trainees on how to impart training on industry-related skills. The Facilitator Guide is aligned to the Qualification Pack (QP) and the National Occupational Standards (NOS) drafted by the 'Food Processing' sector and ratified by National Skill Development Corporation.

It includes the following National Occupational Standards (NOS):

- FIC/N2009: Prepare and maintain work area and process machineries for butter and ghee production
- FIC/N2010: Prepare for production of butter and ghee
- FIC/N2011: Produce butter and ghee
- FIC/N2012: Complete documentation and record keeping related to butter and ghee production
- FIC/N9001: Ensure food safety, hygiene and sanitation for processing food products
- DGT/VSQ/N0101: Employability Skills (30 Hours)

Post this training, the participant will be able to perform tasks as an Grain Mill Operator. We hope that this Facilitator guide provides sound learning support to the aspiring trainers and the trainees.

Symbols Used

Ask


Explain


Elaborate


Notes


Objectives


Do


Demonstrate


Activity


Team Activity


Facilitation Notes


Practical


Say


Resources

Example


Summary


Role Play


Learning Outcomes

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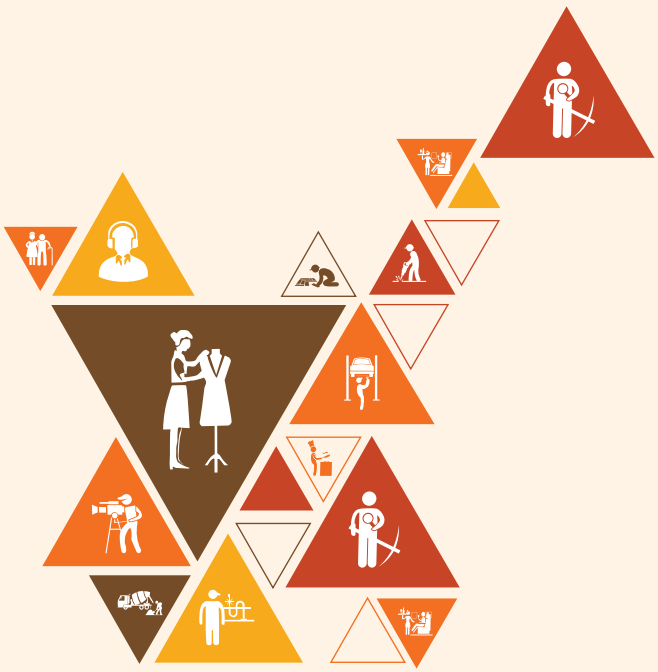
1. Introduction

Unit 1.1 - Introduction to the Training Programme

Unit 1.2 - Introduction to the Food Processing Industry

Unit 1.3 - Introduction to the Dairy Industry in India

Unit 1.4 - Attributes of a Butter and Ghee Processing Operator



FIC/N2009

Key Learning Outcomes

At the end of this module, the students will be able to:

1. Explain the purpose of training
2. Discuss the National Occupational Standards and Qualification Pack
3. Define food processing
4. List the various sectors of the food processing industry
5. Describe the various stages of food processing for converting raw materials to food products
6. State the need for processing milk
7. List the various units within a dairy processing plant
8. State the roles and responsibilities of a butter and ghee processing operator

Unit 1.1: Introduction to the Training Programme

Unit Objectives

At the end of this unit, students will be able to:

1. Explain the purpose of training
2. Discuss the National Occupational Standards and Qualification Pack.

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Butter and Ghee Processing, Images and videos of Butter and Ghee Processing.

Say

Good morning, participants and a very warm welcome to this training program on “Butter and Ghee Processing Operator”.

Do

- Thank all the participants for joining and being a part of this training program
- Introduce yourself briefly to the participants, your name and background, and your role in the training program
- Tell them that you will put them at ease by playing a game. This game is meant to break the ice between everyone and get the trainees interested in the class.
- Explain the game rules you will play as an “Ice Breaker.”

Activity

1. **Activity Name:** Name Game (Ice Breaker)
2. **Objective:** This activity is focused on breaking the ice between the participants so that they can come up confidently in putting forward their opinion
3. **Type of activity:** Group activity
4. **Resources:** Participant Handbook, Pen, Notebook, Writing Pad, etc.
5. **Duration of the activity:** 60 minutes
6. **Steps involved:**
    - Arrange the class in a semi-circle/circle
    - Say your name aloud and start playing the game with your name.
    - Say, “Now, each of you shall continue with the game with your names till the last person in the circle/ semi-circle participates”.

- Listen to and watch the trainees while they play the game.
- Ask questions and clarify if you cannot understand or hear a trainee.
- Discourage any queries related to one's financial status, gender orientation or religious bias during the game
- Try recognising each trainee by their name because it is not recommended for a trainer to ask the name of a trainee during every interaction

7. **Outcome:** This activity has focused on breaking the ice between the participants so that they can come up confidently, putting forward their opinion.

Ask

- What is QP and NOS?
- What is the importance of QP and NOS?

Elaborate

- Purpose and Benefits of the Training Programme:

  The training programme is based upon the National Occupational Standards for the food processing sector. The National Occupational Standards have been described in the following subsection of this chapter.

- Introduction to QP and NOS:

  A QP consists of a set of National Occupational Standards (NOS). NOS specify the standard competency a worker must achieve when carrying out a function at the workplace.

Activity

1. **Activity Name:** Group Discussion
2. **Objective:** This activity is focused on encouraging trainees to share their views and experiences related to the topics covered in the session.
3. **Resources:** Flipchart paper and markers
4. **Duration of the activity:** 20 minutes
5. **Instructions:**
   - Divide the trainees into groups of 4.
   - Provide each group with a flipchart paper and markers.
   - Ask each group to discuss the either one of the following questions:
     - How do you think the topics covered are relevant to your job roles?
     - How can you apply the knowledge gained from this session in your work?
   - Ask each group to write down their answers on the flipchart paper.
   - After 10 minutes, ask each group to present their answers to the rest of the class.
6. **Outcome:** Trainees will be able to share their views and experiences related to the topics covered in the session, and will gain a better understanding of how the topics are relevant to their job roles.

Notes for Facilitation

- Create a positive learning environment by encouraging trainees to participate and express their views.
- Ensure that the session is interactive and engaging by using a variety of teaching methods such as presentations, discussions and activities.
- Encourage trainees to ask questions and clarify their doubts about training program, QP, NOS and others.
- Provide feedback and positive reinforcement to trainees to encourage their learning and development.

Unit 1.2: Introduction to the Food Processing Industry

Unit Objectives

At the end of this unit, students will be able to:

1. Define food processing
2. List the various sectors of the food processing industry
3. Describe the various stages of food processing for converting raw materials to food products.

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Food Processing, Images and Videos related to Food Processing.

Say

Good morning, participants and a very warm welcome to this training program on “Butter and Ghee Processing Operator”. Today we will discuss about the topic Introduction to the Food Processing Industry.

Do

- Start the session by presenting a brief overview of the food processing industry, its significance, and how it contributes to the economy.
- Discuss the journey of food from harvest to consumer, highlighting the various stages involved in food processing, including sorting, cleaning, packaging, and distribution.
- Use real-life examples to illustrate the importance of food processing and how it affects our daily lives.

Ask

- What do you know about the food processing industry?
- How do you think food gets from the farm to your plate?
- Why is it important to process food before it is consumed?

Elaborate

- Food Processing: Define food processing and explain why it is necessary. Discuss the various types of food processing, including preservation, packaging, and transportation. Emphasize the importance of food safety, quality, and sustainability in the food processing industry.

- Journey of Food from Harvest to Consumer: Explain the stages involved in food processing, including sorting, cleaning, packaging, and distribution. Discuss the various technologies and techniques used in each stage, including refrigeration, freezing, canning, and dehydration. Provide examples of different types of food processing, such as meat processing, dairy processing, and bakery processing.

Activity

1. **Activity Name:** Food Journey Map
2. **Objective:** To understand the journey of food from harvest to consumer.
3. **Resources:** Whiteboard or flipchart, marker pens
4. **Duration of the activity:** 30 minutes
5. **Steps involved:**
   - Draw a large map of the journey of food from harvest to consumer on the whiteboard or flipchart.
   - Divide the participants into groups of 3-4 and provide them with different colored markers.
   - Instruct each group to choose a specific food product (e.g., apple, bread, milk) and plot the journey of that product on the map using their colored markers.
   - Encourage the groups to include all the steps involved in the journey of their chosen food product.
   - Once all the groups have completed their food journey maps, bring everyone together to share their findings and discuss the commonalities and differences between the different food products.
6. **Outcome:** Participants will have a visual representation of the journey of food and a deeper understanding of the complexity of the food processing industry.

Notes for Facilitation

- Encourage participation and discussion throughout the session.
- Create a comfortable and open learning environment for participants to ask questions and share their experiences.
- Provide real-life examples and case studies to illustrate the concepts covered in the class.
- Emphasize the importance of food safety and quality in the food processing industry.
- Highlight the various career opportunities available in the food processing industry.

Unit 1.3: Introduction to the Dairy Industry in India

Unit Objectives

At the end of this unit, students will be able to:

1. State the need for processing milk
2. List the various units within a dairy processing plant.

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Food Processing, Images and Videos related to Food Processing.

Say

- Good morning Trainees in this session, we will learn about the Indian Dairy Industry, the units of a Dairy Processing Plant and engage in an activity to deepen our understanding.
- Feel free to ask questions and participate in the discussion. I encourage you to share your knowledge and experiences about the Dairy Industry in India.

Do

- Start the session by introducing yourself and asking the trainees to introduce themselves.
- Share the PowerPoint slides on the Indian Dairy Industry and explain the different units of a Dairy Processing Plant through videos.
- Conduct the activity to reinforce the learning and provide the opportunity for the trainees to interact with one another and taste different dairy products.

Ask

- What are the different types of dairy products consumed in India?
- How does the Indian Dairy Industry contribute to the country's economy?

Elaborate

- Dairy Industry in India
- Units of a Dairy Processing Plant

Demonstrate

Show a video on the milk processing unit of a Dairy Processing Plant to help the trainees visualize the process.

Activity

1. **Activity Name:** Tasting Dairy Products
2. **Objective:** To identify different dairy products and understand their production process
3. **Resources:** Dairy products, Worksheets, Pen/Pencil
4. **Duration of the activity:** 30 minutes
5. **Instructions:**
    - Distribute the worksheets and pen/pencil to the trainees.
    - Place the different dairy products on a table for the trainees to taste and identify.
    - Instruct the trainees to taste the different products and write down the names and the process involved in making them on the worksheet.
    - Once everyone has completed the activity, ask them to share their findings with the group.
6. **Outcome:** Trainees will have a deeper understanding of the different dairy products and the production process involved in making them.

Notes for Facilitation

- Ensure that everyone has a clear understanding of the topics covered before proceeding to the activity.
- Encourage participation and discussion among the trainees throughout the session.
- Provide feedback and answer any questions the trainees may have.
- Emphasize the importance of hygiene and food safety during the tasting activity.
- Explain the economic and social significance of the Indian Dairy Industry to help the trainees understand the larger picture.

Unit 1.4: Attributes of a Butter and Ghee Processing Operator

Unit Objectives

At the end of this unit, students will be able to:

1. State the roles and responsibilities of a butter and ghee processing operator.

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Food Processing, Images and Videos related to Food Processing.

Say

Good morning trainees today, we will be discussing the roles and responsibilities of a butter and ghee processing operator and how to become an effective operator in this industry.

Do

- Begin by introducing the topic to the trainees and giving them a brief overview of the butter and ghee processing industry.
- Discuss the roles of a butter and ghee processing operator, including their responsibilities in maintaining equipment, ensuring product quality, and adhering to safety protocols.
- Present case studies of successful butter and ghee processing operators, highlighting the attributes that made them successful.
- Elaborate on the key attributes of an effective butter and ghee processing operator, including attention to detail, problem-solving skills, and communication abilities.
- Demonstrate some of the tasks that a butter and ghee processing operator may be required to perform, such as testing products and cleaning equipment.

Ask

- What do you know about the butter and ghee processing industry?
- What qualities do you think are necessary to become a successful butter and ghee processing operator?

Elaborate

- Roles of a Butter and Ghee Processing Operator: Operators play a critical role in maintaining the equipment used in butter and ghee processing, ensuring product quality, and adhering to safety protocols.
- Responsibilities of a Butter and Ghee Processing Operator: Operators are responsible for setting up and operating the equipment used in butter and ghee processing, monitoring product quality, and adhering to safety guidelines.

Demonstrate

Demonstrate the proper operation of key processing equipment, such as churners and clarifiers, to familiarize trainees with their usage.

Activity

1. **Activity Name:** Role-Playing Exercise
2. **Objective:** To simulate real-life scenarios that a butter and ghee processing operator may face on the job and develop problem-solving skills.
3. **Resources:** Whiteboard, markers, case studies, and role-playing scenarios
4. **Duration of the activity:** 30 minutes
5. **Instructions:**
    - Divide the trainees into three groups.
    - Provide each group with a case study that describes a problem faced by a butter and ghee processing operator and ask them to brainstorm solutions.
    - Assign roles to each group member (e.g., processing operator, supervisor, quality control specialist) and ask them to act out the scenario.
    - Encourage the trainees to use effective communication and problem-solving skills to resolve the issue.
6. **Outcome:** This activity will help trainees develop problem-solving skills and prepare them for real-life scenarios that may arise on the job.

Notes for Facilitation

- Encourage trainees to ask questions and participate actively in discussions.
- Set clear expectations for behavior and participation at the beginning of the session.
- Emphasize the importance of safety and quality control in butter and ghee processing.
- Remind trainees that effective communication and problem-solving skills are essential for success in this industry.
- Provide feedback to trainees during the activity to help them improve their problem-solving skills.

Answers to Exercises for PHB

1. a. processing
2. b. consumers
3. c. receipt
4. d. processed
5. e. Agriculture
6. f. Fruit and Vegetable processing
7. g. principles
8. h. food safety norms
9. i. perishable

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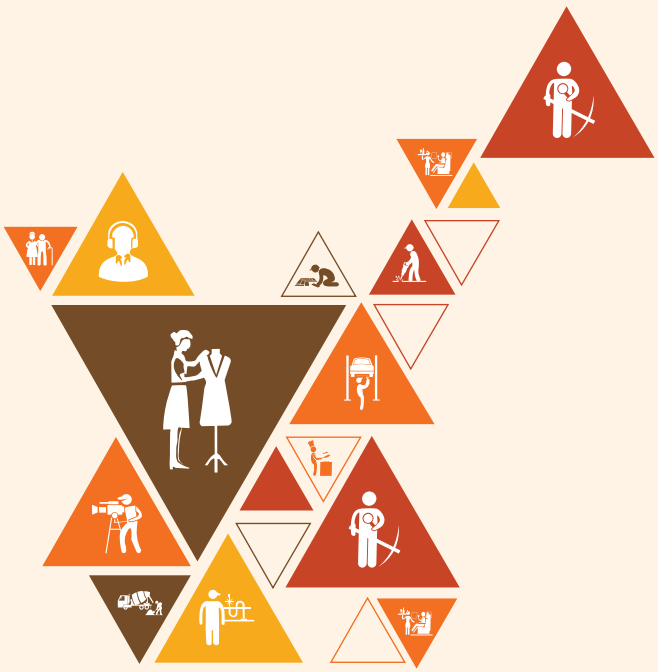
2. Food Safety, Hygiene and Sanitation for Processing Food Products

Unit 2.1 - Sanitation and Hygiene

Unit 2.2 - Safety Practices

Unit 2.3 - Good Manufacturing Practices (GMP)

Unit 2.4 - Hazard Analysis and Critical Control Point (HACCP)



FIC/N9001

Key Learning Outcomes 

At the end of this module, the students will be able to:

1. State the personal hygiene and sanitation guidelines to follow in a work environment
2. State the food safety and hygiene standards to follow in a work environment
3. List the different sanitisers used in the process area and equipment
4. Follow health and safety practices in the work area
5. State the importance of safety, hygiene, and sanitation in the dairy processing industry
6. Follow the industry standards to maintain a safe and hygienic workplace
7. Follow HACCP principles to eliminate food safety hazards in the process and products

Unit 2.1: Sanitation and Hygiene

Unit Objectives

At the end of this unit, students will be able to:

1. State the personal hygiene and sanitation guidelines
2. State the food safety hygiene standards to follow in a work environment
3. List the different sanitisers used in the process area and equipment.

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Sanitation and Hygiene, Images and Videos related to Sanitation and Hygiene, Soap, Water, Hand Sanitizer and Clean Towels.

Say

- Welcome to our session on Sanitation and Hygiene.
- Today, we will learn about personal sanitation, personal hygiene, hand washing, and how good personal hygiene can prevent food poisoning.
- This session is important for everyone to understand and practice, especially those who handle food in their work environment.

Do

- Introduce the topic of personal sanitation and cover topics such as washing hands with soap and water, avoiding smoking, spitting, and coughing, and seeking timely medical treatment.
- Cover personal hygiene and the importance of showering and bathing regularly, keeping hair clean and covered or tied back, keeping clean clothing and footwear that is used only at work, and hand washing regularly.
- Discuss hand washing, including methods of washing hands, usage of sanitizer, and the times to wash and sanitize hands.
- Emphasize how good personal hygiene can prevent food poisoning.

Ask

- What do you know about personal hygiene and sanitation?
- Why is personal hygiene important in the food industry?
- How can good personal hygiene practices prevent food poisoning?

Elaborate

- Personal Sanitation: Personal sanitation refers to the practices of keeping oneself and one's surroundings clean and free from germs and bacteria. It includes activities such as bathing regularly, washing clothes, and keeping the living and working areas clean.
- Personal Hygiene: Personal hygiene refers to the practices of maintaining cleanliness and grooming oneself properly to prevent the spread of germs and disease. It includes activities such as brushing teeth, washing hands, and maintaining good oral and body hygiene.
- Hand Washing: Hand washing is the act of cleaning one's hands with soap and water or hand sanitizer to remove dirt, germs, and bacteria. It is an essential practice in preventing the spread of diseases and should be done before and after handling food, using the restroom, or being in contact with sick individuals.
- Good Personal Hygiene to Prevent Food Poisoning: Maintaining good personal hygiene is crucial in preventing food poisoning. It includes washing hands before handling food, covering one's mouth while coughing or sneezing, avoiding touching one's face or hair, and wearing clean clothes while preparing food.

Demonstrate

- Demonstrate how to wash hands effectively using soap and water, focusing on areas around nails and wrists.
- Demonstrate the usage of hand sanitizer when soap and water are not available.

Activity

1. **Activity Name:** Hand Washing Relay Race
2. **Objective:** To reinforce the importance of hand washing and proper techniques.
3. **Resources:** Hand washing station with soap and water, clean towels
4. **Duration of the activity:** 15-20 minutes
5. **Instructions:**
    - Divide the participants into 4 teams.
    - Mark a starting and finishing line.
    - Place the handwashing station and clean towels at the finishing line.
    - Ask the first player of each team to run to the starting line, wash their hands with soap and water, and dry them with a clean towel.
    - Once they have completed washing their hands, they should run back to their team and tag the next player.
    - The game continues until all players have washed their hands.
    - The team that completes the relay race first wins.
6. **Outcome:** This activity helps reinforce the importance of hand washing and proper techniques in a fun and engaging way.

Notes for Facilitation

- Encourage active participation and engagement throughout the session.
- Use examples and scenarios relevant to the participants' work environment to make the session more relatable.
- Emphasize the importance of practicing good personal hygiene practices.

Unit 2.2: Safety Practices

Unit Objectives

At the end of this unit, students will be able to:

1. Follow health and safety practices in the work area.

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Safety Practices, Images and Videos of Safety Practices, Fire extinguisher and Fire Bucket.

Say

- Good morning trainees and welcome to our session on Safety Practices.
- Today, we will learn about Safety symbols, Emergency Measures and Fire Safety Measures.

Do

- Introduce the topic of safety symbols and emergency measures by presenting a PowerPoint on safety symbols commonly used in workplaces and explaining their meanings.
- Discuss the emergency evacuation plan and the trainees' roles and responsibilities during emergency situations.
- Discuss fire safety measures, including how to prevent fires, types of fires, and how to use fire extinguishers and fire buckets.
- Distribute handouts on emergency evacuation plans and fire safety measures, and encourage trainees to review them and ask any questions they may have.
- Demonstrate the use of a fire extinguisher and fire bucket.

Elaborate

- Safety Symbols:

  Safety symbols are used to convey important information related to hazards, precautions, and actions to take to avoid danger. Some common safety symbols include the "Biohazard" symbol, which indicates the presence of a biological hazard that can cause harm to human health; the "High Voltage" symbol, which warns of the presence of high voltage electrical equipment or lines; and the "Flammable" symbol, which warns of flammable materials that can ignite and cause fire. It is important to understand and recognize these symbols to ensure safety in the workplace and in daily life. (Refer to fig 2.2.1. Safety symbols in PH)

- Emergency Measures:

  During emergency situations, it is important to have a well-defined evacuation plan and know what to do. The emergency evacuation plan should be reviewed regularly and all employees should be familiar with it. The plan should include exit routes, designated meeting points, and emergency contact information. It is also important to know how to respond to different emergency situations, such as fire, earthquake, or severe weather, and to know the appropriate actions to take. (Refer to fig 2.2.2, 2.2.3, 2.2.4 Safety symbols in PH)

- Fire Safety Measures:

  Fires can be caused by various factors, including electrical faults, smoking, cooking, and heating appliances. To prevent fires, it's crucial to follow proper safety measures, such as keeping flammable materials away from heat sources, turning off appliances when not in use, and avoiding smoking near combustible materials. Knowing the different types of fires and the appropriate type of fire extinguisher for each is also crucial. There are four types of fires: A, B, C, and D, each requiring a specific type of extinguisher. It's important to learn how to use a fire extinguisher and fire bucket, and to practice using them in simulated emergency situations.

Demonstrate

Demonstrate the use of a fire extinguisher and fire bucket, showing how to hold and aim the extinguisher and how to use a fire bucket to put out a fire.

Activity

1. **Activity Name:** Fire Extinguisher Training
2. **Objective:** Train trainees on how to use a fire extinguisher safely and effectively.
3. **Resources:** Fire extinguisher, fire bucket, training fire simulator
4. **Duration of the activity:** 30 minutes
5. **Instructions:**
   - Divide the trainees into groups of 3.
   - Provide each group with a fire extinguisher and a fire bucket.
   - Have them practice using the fire extinguisher to put out a fire on the training fire simulator.
   - Monitor each group and provide feedback on their technique.
   - After each group has practiced, conduct a debriefing session, discussing the strengths and areas for improvement.
6. **Outcome:** Trainees will have gained practical experience in using a fire extinguisher and feel more confident in their ability to use one in an emergency situation.

Notes for Facilitation

- Emphasize the importance of safety in the workplace and encourage trainees to take safety seriously.
- Use examples and anecdotes to illustrate the importance of safety practices.

- Be clear and concise in your instructions, and use visual aids to help trainees understand the concepts.
- During the fire extinguisher demonstration, ensure that the area is safe and free of any potential hazards.
- Encourage trainees to ask questions and participate actively in the training session.

Unit 2.3: Good Manufacturing Practices (GMP)

Unit Objectives

At the end of this unit, students will be able to:

1. State the importance of safety, hygiene, and sanitation in the food processing industry
2. Follow the industry standards to maintain a safe and hygienic workplace
3. State the storage and stock rotation norms.

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Good Manufacturing Practices (GMP), Images and Videos of Good Manufacturing Practices (GMP), Handouts on Personnel Hygiene, Pen and Paper For Note-Taking.

Say

- Good morning trainees and welcome to our session on Good Manufacturing Practices (GMP).
- Today, we will learn about Good Manufacturing Practices, Personnel hygiene, Sanitation of the work area.
- We will also discuss the importance of GMP, the regulatory requirements, and how to implement GMP in your workplace.

Do

- Start the session by discussing the basics of GMP, followed by personnel hygiene, sanitation of work area, equipment maintenance, and process validation.
- Use PowerPoint presentations and handouts to explain the topics and engage the participants in discussions.
- Provide relevant case studies to help participants understand the practical implementation of GMP.

Ask

- What is your understanding of GMP?
- What are the regulatory requirements for GMP?
- How can you implement GMP in your workplace?

Elaborate

- Good Manufacturing Practices (GMP): GMP refers to the procedures and practices that ensure that food products are safe, of high quality, and meet the regulatory standards. It includes personnel hygiene, sanitation of work area, equipment maintenance, and process validation.
- Personnel hygiene: Personnel hygiene is an essential component of GMP. It includes maintaining personal hygiene, following strict hygiene and sanitation guidelines, being in good health during working hours, following high standards of cleanliness, and having adequate facilities for toilets and wash stations.
- Sanitation of the work area: The work area should be located in a clean, pollution-free area, well ventilated with adequate lighting, follow high standards of cleaning and sanitisation, and have a designated area for keeping utensils and equipment, which should be kept clean and pest-free at all times.
- Equipment maintenance: The equipment used for processing foods should be protected against contamination from lubricants, metal fragments, fuel, and contaminated water. Cleaning and maintenance of tools, materials, and equipment should be an easy process, and organisations should follow a cleaning and sanitising drill as per daily, weekly, and monthly schedules.
- Process validation: All processes of production, such as raw material procurement, execution, storage, packaging, and logistics, should follow strict organisational parameters. Quality checks should be conducted at each step of production to ensure that food quality is maintained as per prescribed norms and standards. The stock rotation of finished products should follow the FEFO and FIFO methods to ensure minimum chances of food spoilage and retain the taste of processed foods.

Activity

1. **Activity Name:** Equipment Inspection and Maintenance
2. **Objective:** To reinforce the importance of equipment maintenance
3. **Resources:** Sample equipment, cleaning and sanitizing agents, inspection checklist
4. **Duration of the activity:** 30 minutes
5. **Steps involved:**
    - Divide the trainees into four groups.
    - Provide each group with a sample equipment and inspection checklist.
    - Instruct the groups to inspect the equipment, identify any defects or issues, and discuss the maintenance procedures required to address them.
    - Instruct the groups to clean and sanitize the equipment using the cleaning and sanitizing agents provided.
    - Instruct the groups to complete the inspection checklist and discuss their findings and recommendations with the entire group.
    - and the challenges they faced during the simulation..
6. **Outcome:** The trainees will learn the importance of equipment inspection and maintenance to prevent contamination and ensure safe production.

Notes for Facilitation

- Provide a safe and comfortable learning environment.
- Encourage participation and engagement from all trainees.

- Ensure that the trainees understand the importance of equipment inspection and maintenance in the manufacturing process.
- Emphasize the need for regular equipment inspection and maintenance to ensure that the equipment is functioning optimally and to prevent contamination.
- Address any questions or concerns that the trainees may have during the session and provide additional information as needed.

Unit 2.4: Hazard Analysis and Critical Control Point (HACCP)

Unit Objectives

At the end of this unit, students will be able to:

1. Follow HACCP principles to eliminate food safety hazards in the process and products.

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Hazard Analysis and Critical Control Point (HACCP), Images and Videos of Hazard Analysis and Critical Control Point (HACCP).

Say

Good morning participants in this session, we will learn about the importance of HACCP in ensuring food safety, and how to develop an HACCP plan.

Do

- Begin the session by introducing yourself and asking the participants to introduce themselves.
- Present the slides on HACCP, covering the following topics:
  - Definition and principles of HACCP
  - Benefits of HACCP
  - Steps to develop an HACCP plan
- Use the example HACCP plan to illustrate how to develop an HACCP plan, and encourage participants to ask questions and provide feedback.
- Conclude the session by summarizing the key points covered and answering any remaining questions.

Ask

- What do you already know about HACCP?
- Why is HACCP important in ensuring food safety?

Elaborate

- What is HACCP?

  HACCP (Hazard Analysis and Critical Control Point) is a systematic approach used to identify, assess, and control hazards that may pose a risk to food safety throughout the production and processing stages.

- Example of an HACCP Plan

  An example of an HACCP plan is a practical demonstration of how the HACCP principles are applied in a specific food production or processing scenario, including the identification of critical control points and the implementation of control measures.

- Food Safety Hazard and Risk

  Food safety hazards refer to biological, chemical, or physical agents that can contaminate food and cause harm to consumers. Understanding these hazards and assessing their associated risks is crucial for implementing effective control measures.

Demonstrate

Demonstrate the process of developing an HACCP plan using the example plan, emphasizing the identification of hazards, determination of critical control points, and implementation of control measures.

Activity

1. **Activity Name:** Risk Assessment
2. **Objective:** To understand the process of risk assessment and its importance in ensuring food safety.
3. **Resources:** Whiteboard, markers, handouts
4. **Duration of the activity:** 20 minutes
5. **Instructions:**
   - Divide the participants into 4 groups.
   - Provide each group with a case study related to food safety hazards and risks.
   - Ask each group to identify the hazards and risks, assess the likelihood and severity of harm, and determine the appropriate control measures.
   - After completing the risk assessment, ask each group to present their findings to the rest of the class.
6. **Outcome:** Participants will gain practical experience in identifying food safety hazards and risks and assessing their likelihood and severity.

Notes for Facilitation

- Maintain an interactive and engaging environment throughout the session.
- Encourage participants to ask questions and provide feedback.
- Emphasize the importance of implementing HACCP in the food industry.
- Highlight the consequences of not following food safety regulations.
- Use relevant examples and case studies to illustrate the concepts discussed.

Answers to Exercises for PHB

1. Identify the correct focus area of GMP from the list given below. Mark the correct option.

a. Process validation
b. Equipment maintenance
c. Personnel hygiene
d. Sanitation of the work area
e. None of the listed options.
f. Sanitation of the work area
g. None of the listed options.
h. Personnel hygiene.

2. Match the column.

a. Plan preventive measures at that critical point to control the risk - vii. Establish corrective measures
b. State the boundary line between safe and unsafe processes - iii. Establish critical limits
c. Specify the corrective actions that should be followed when critical limits are crossed - vi. Identify critical control points
d. Test the HACCP plan and ensure compliance on a regular basis - ii. State verification procedures
e. Maintain a log of situations when critical limits were exceeded - i. Follow record-keeping procedures
f. Evaluate the production process and identify the points where hazards may be introduced - v. Conduct a hazard analysis
g. State the process of monitoring critical points and critical limits - iv. Establish a monitoring system

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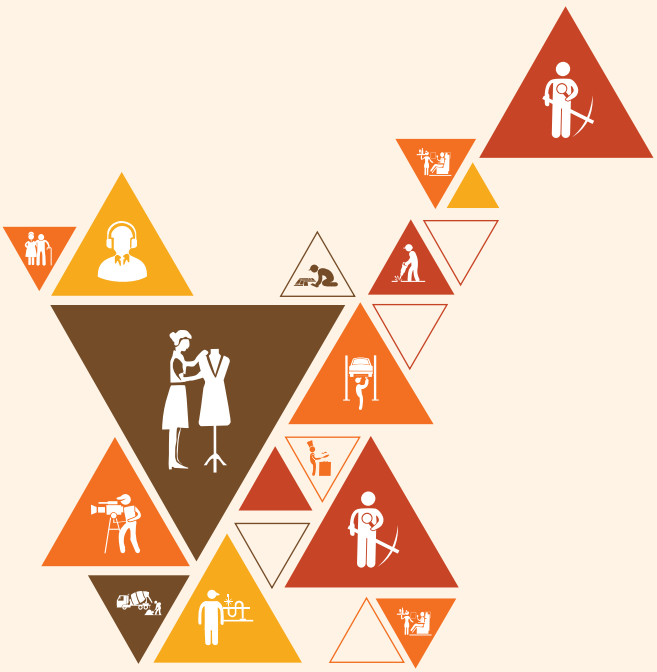
3. Prepare and Maintain Work Area and Process Machineries for Butter and Ghee Production

Unit 3.1 - Usage and Maintenance of Equipment and Machineries

Unit 3.2 - Sanitisation of Work Area

Unit 3.3 - Cleaning Processes



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Key Learning Outcomes 

At the end of this module, the students will be able to:

1. List the machineries used in a dairy processing plant
2. Explain the functions to be carried out before starting production
3. Explain the maintenance procedure to be followed for dairy processing machineries before starting production
4. Explain the lubrication system followed in the dairy industry
5. State the different types of maintenance procedures
6. State the materials and equipment used in the cleaning and maintenance of the work area
7. State the common detergents and sanitisers used in cleaning work area and machineries
8. State the properties of cleaning agents used
9. State the methods of cleaning and sanitisation
10. Describe the CIP method of cleaning
11. Describe the SIP method of cleaning
12. Explain the method of managing and disposing waste material

Unit 3.1: Usage and Maintenance of Equipment and Machineries

Unit Objectives

At the end of this unit, students will be able to:

1. List the machineries used in a dairy processing plant
2. Explain the functions to be carried out before starting production
3. Explain the maintenance procedure to be followed for dairy processing machineries before starting production
4. Explain the lubrication system followed in the dairy industry
5. State the different types of maintenance procedures

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Usage and Maintenance of Equipment and Machineries, Images and Videos of Usage and Maintenance of Equipment and Machineries.

Say

- Good morning participants in this session, we will discuss the different equipment used in dairy processing, demonstrate the usage of a cream bowl separator, and go through the preparation and maintenance of machineries.
- The session will be interactive, and we encourage you to ask questions and share your experiences related to equipment and machinery usage.
- By the end of this session, you should be able to identify the various equipment used in dairy processing, operate a cream bowl separator, and perform basic maintenance checks on machineries.

Do

- Introduce the topics to be covered and provide an overview of the session.
- Present the slides on equipment used in dairy processing, discussing the different types of equipment and their functions.
- Demonstrate the usage of a cream bowl separator, highlighting the steps involved and safety precautions to be taken.
- Discuss the preparation of machineries, including cleaning and inspection procedures before use.
- Go through the maintenance checklist for machineries, emphasizing the importance of regular checks and maintenance to ensure smooth functioning and prevent breakdowns.

Ask

- What are some common types of equipment used in dairy processing?
- What are some safety precautions to be taken when using a cream bowl separator?

Elaborate

- Equipment Used in Dairy Processing: Various equipment used in dairy processing include pasteurizers, homogenizers, separators, cheese vats, and milk tanks, which are essential for tasks such as pasteurization, separation of cream, cheese production, and storage of milk.
- Using a Cream Bowl Separator: A cream bowl separator is utilized in dairy processing to separate milk into cream and skim milk by centrifugal force, with the cream being discharged from one outlet and the skim milk from another outlet, allowing for efficient cream extraction.
- Preparation of Machineries: Before commencing dairy processing operations, machineries such as pasteurizers and separators need to be prepared by ensuring they are clean, sanitized, and properly assembled, and the necessary raw materials, such as milk and cream, are available for processing.
- Maintenance and Check: Regular maintenance and checks of dairy processing equipment are crucial to ensure proper functioning and prevent breakdowns. This includes cleaning, lubrication, inspection of parts, and addressing any issues promptly to maintain the equipment's efficiency and longevity.

Demonstrate

Conduct a live demonstration of using a cream bowl separator, showcasing each step and explaining the critical points to pay attention to during the process.

Activity

1. **Activity Name:** Cream Separation Activity
2. **Objective:** To practice using a cream bowl separator
3. **Resources:** Cream bowl separator, milk, container for cream, safety goggles
4. **Duration of the activity:** 30 minutes
5. **Instructions:**
    - Divide participants into 3-4 groups.
    - Provide each group with a cream bowl separator and milk.
    - Instruct participants to wear safety goggles and follow the instructions for using the cream bowl separator.
    - Each group should separate the cream from the milk and collect it in a container provided.
    - After the activity, discuss any challenges faced during the cream separation and share tips for efficient usage of the cream bowl separator.
6. **Outcome:** Participants will have hands-on experience in using a cream bowl separator and be familiar with the process of cream separation.

Activity

1. **Activity Name:** Equipment Maintenance Checklist
2. **Objective:** To reinforce the importance of equipment maintenance and provide practical experience in conducting maintenance checks.
3. **Resources:** Equipment maintenance checklist, sample equipment (if available)
4. **Duration of the activity:** 30 minutes
5. **Instructions:**
   - Divide participants into small groups.
   - Distribute the equipment maintenance checklist to each group.
   - Ask each group to review the checklist and select a piece of equipment from the sample equipment (or ask them to imagine a specific equipment).
   - Instruct the groups to conduct a mock maintenance check based on the checklist, identifying potential issues, and suggesting corrective actions.
   - Allow sufficient time for the groups to complete the activity.
   - Bring the groups back together and have each group share their findings and recommendations.
   - Facilitate a discussion on the importance of regular equipment maintenance and the role it plays in ensuring product quality and operational efficiency.
6. **Outcome:** Participants gain practical experience in conducting equipment maintenance checks and understand the significance of regular maintenance in dairy processing operations.

Notes for Facilitation

- Maintain a positive and engaging environment throughout the class.
- Encourage trainees to ask questions and clarify their doubts.
- Provide regular breaks to keep the trainees fresh and energized.
- Explain the importance of safety measures while using the equipment and machineries.
- Emphasize the significance of maintenance and checks in reducing the risk of accidents and breakdowns.

Unit 3.2: Sanitisation of Work Area

Unit Objectives

At the end of this unit, students will be able to:

1. State the materials and equipment used in cleaning and maintenance of the work area and machineries
2. List the various cleaning chemicals required
3. List the appropriate cleaning agents and sanitizers to clean the work area, machinery, tools, and equipment after squash production
4. State the methods of cleaning and sanitization

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Sanitisation of Work Area, Images and Videos of Sanitisation of Work Area.

Say

- Good morning trainees today, we will learn about the importance of cleaning and sanitizing the work area, machinery, tools, and equipment.
- We will also discuss the different cleaning agents and sanitizers used for cleaning.

Do

- Introduce the topic and objectives of the session.
- Present the PowerPoint slides and engage the trainees in discussions.
- Demonstrate the correct cleaning and sanitizing techniques and allow the trainees to practice.

Ask

- What are some reasons why it is important to clean and sanitize the work area and equipment?
- Can you name some common cleaning agents and sanitizers used in the food industry?
- How often should the work area and equipment be cleaned and sanitized?

Elaborate

- Cleaning & Sanitizing Work Area, Machinery, Tools, and Equipment
- Cleaning Agents and Sanitizers Used for Cleaning

Demonstrate

Demonstrate the correct cleaning and sanitizing techniques, including the proper use of cleaning agents and sanitizers and the correct order of cleaning and sanitizing.

Activity

1. **Activity Name:** Cleaning and Sanitizing Exercise
2. **Objective:** To apply the correct cleaning and sanitizing techniques
3. **Resources:** Cleaning cloths, brushes, cleaning agents, sanitizers, safety equipment
4. **Duration of the activity:** 30 minutes
5. **Instructions:**
    - Divide the trainees into pairs
    - Provide each pair with a section of the work area to clean and sanitize.
    - Have them use the correct cleaning agents and sanitizers, and ensure they follow proper cleaning and sanitizing techniques.
    - After 15 minutes, switch the pairs to different sections of the work area.
6. **Outcome:** Trainees will have practiced the correct cleaning and sanitizing techniques and will have a better understanding of the importance of maintaining a clean and hygienic work environment.

Notes for Facilitation

- Ensure that all trainees wear appropriate safety equipment during the activity.
- Encourage trainees to ask questions and participate in discussions.
- Emphasize the importance of following proper cleaning and sanitizing techniques to prevent the spread of harmful microorganisms.
- Remind trainees to label and store cleaning agents and sanitizers properly.
- Provide a checklist or visual aid to help trainees remember the correct order of cleaning and sanitizing.
- Monitor the progress of the activity and provide guidance if required.
- Address any questions or concerns raised by participants during the session.

Unit 3.3: Cleaning Processes

Unit Objectives

At the end of this unit, students will be able to:

1. State the cleaning processes used to clean the work area and process machineries.

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Cleaning Processes, Images and Videos of Cleaning Processes.

Say

- Good morning participants in this session, we will cover Clean-In-Place, Clean-Out-Of-Place, and Sterilising-In-Place processes.
- The objective of this class is to help you understand the importance of proper cleaning processes and how to effectively clean equipment and work areas to ensure food safety.

Do

- Start the session with an icebreaker activity to create a comfortable and engaging learning environment.
- Introduce the topics of Clean-In-Place, Clean-Out-Of-Place, and Sterilising-In-Place processes, and provide an overview of each topic using the PowerPoint presentation.
- Use the flipchart to explain the tips for conducting an effective COP process, and the food processing equipment and units that undergo the COP process.
- Demonstrate how to clean different types of equipment and surfaces using the cleaning equipment and materials, and encourage trainees to participate in the demonstration.
- Provide handouts on cleaning and sanitising solutions, flow rate, and COP process order of tasks, and go through each handout with the trainees.

Ask

- What cleaning processes are you familiar with?
- Why is it important to use the right cleaning and sanitising solutions?

Elaborate

- Clean-In-Place (CIP): CIP is a method used to clean the interior surfaces of equipment and pipelines without disassembling them. It involves circulating cleaning solutions through the system to remove residue and contaminants, followed by rinsing with water to ensure the removal of all cleaning agents.
- Clean-Out-Of-Place (COP): COP is a cleaning method that involves removing parts of equipment or tools and cleaning them separately in a designated cleaning area. It is used for parts that cannot be cleaned using the CIP method. The parts are disassembled, cleaned, and then reassembled back into the equipment or tool.
- Sterilising-In-Place (SIP): SIP is a method used to sterilize equipment and pipelines using high-temperature steam or chemicals. It is usually done after CIP to ensure that all microorganisms have been eliminated from the equipment.
- Air-Pressure Cleaning: Air-pressure cleaning is a method used to clean surfaces or equipment by blowing high-pressure air onto the surface. It is typically used to remove dry or loose contaminants, such as dust, dirt, and debris.
- Process of Cleaning the Work Area: The process of cleaning the work area involves removing all unnecessary items, wiping down surfaces, and disposing of waste in designated containers. This ensures that the work area is free of contaminants and ready for the next task.
- Process of Cleaning Machineries, Tools, and Equipment: The process of cleaning machineries, tools, and equipment involves dismantling, washing, sanitizing, and drying the items using appropriate cleaning agents and methods. It ensures that the equipment is free of contaminants and ready for use.

Demonstrate

Demonstrate the COP process using the samples of food processing equipment and units. Show the trainees how to disassemble the equipment, clean it in tanks, and reassemble it.

Activity

1. **Activity Name:** COP Simulation
2. **Objective:** To practice the COP process and understand the importance of following the correct order of tasks and using the right cleaning tanks and tools.
3. **Resources:** Samples of equipment used in the COP process, cleaning and sanitising solutions, cleaning tanks, and tools.
4. **Duration of the activity:** 30 minutes
5. **Steps Involve:**
    - Divide the trainees into small groups.
    - Provide each group with samples of equipment used in the COP process, cleaning and sanitising solutions, cleaning tanks, and tools.
    - Instruct each group to follow the correct order of tasks for the COP process, use the right cleaning tanks, using the right tools, and make sure that the tools used do not lead to contamination.
    - Ask the groups to designate a leader who will oversee the entire process and ensure that everyone is following the correct procedures.
    - Give the groups 20 minutes to complete the simulation.

- After the simulation is complete, reconvene the groups and ask each leader to share their experience and the challenges they faced during the simulation.

6. **Outcome:** By participating in the COP simulation activity, trainees will understand the importance of following the correct order of tasks and using the right cleaning tanks and tools in the COP process. They will also learn how the use of the right tools and cleaning tanks can prevent contamination and ensure that the equipment is thoroughly cleaned.

Notes for Facilitation

- Be enthusiastic and energetic throughout the session to keep the trainees engaged.
- Ensure that the learning objectives are clear and communicated to the trainees at the beginning of the session.
- Emphasize the importance of following the correct cleaning process and using the right solutions, tools, and equipment.
- Encourage trainees to ask questions and clarify any doubts they may have during the session.
- Highlight the significance of monitoring and verifying the cleaning process to ensure that it is effective and meets the required standards.

Answers to Exercises for PHB

1. Match the columns.

1. Raw Milk Reception Dock v. Arrival and receiving milk after grading for acceptance
2. Milk Chiller i. Rapid cooling of milk
3. Milk Separator vi. Separates milk into cream and skimmed milk
4. Homogeniser ii. Uniform mixture of two mutually non-soluble liquids
5. Storage Tanks iii. Short or long term storage
6. Pasteuriser iv. Process of heating milk to a specific temperature
7. Milk Packaging Machine viii. Ideal for packaging free-flowing type or granular food products
8. Cream Separator vii. Separate milk from cream

2. Fill in the blanks with the correct option.

a. ii. biological, chemical
b. ii. destruction
c. iii. Raw Milk Reception Dock
d. i. SIP
e. i. Sanitisation-in-place
f. i. management
g. ii. complementary
h. i. Chemical
i. iii. non-toxic
j. iii. CIP

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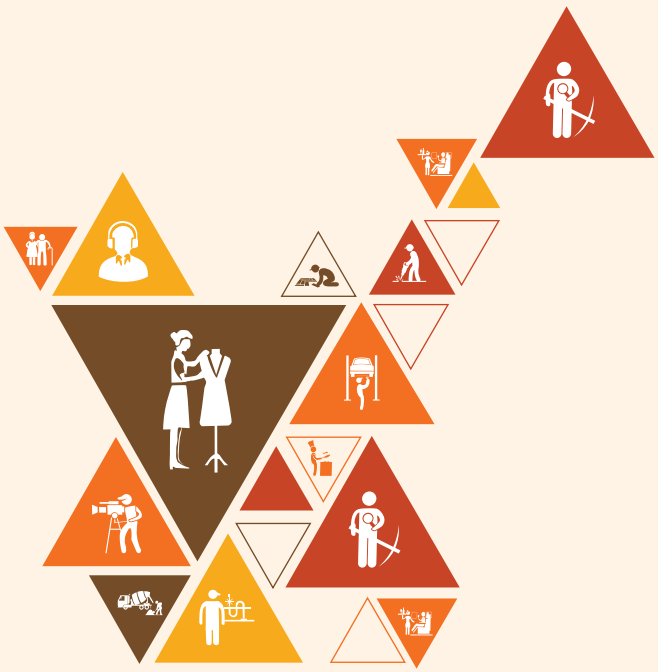
4. Prepare for Production of Butter and Ghee

Unit 4.1 - Basic Calculations

Unit 4.2 - Factors Affecting Efficiency during Production

Unit 4.3 - Plan Production Sequence



FIC/N2010

Key Learning Outcomes 

At the end of this module, the students will be able to:

1. Explain the various calculations required for standardisation of cream
2. State the factors affecting operation efficiency during production
3. Describe the process of planning production sequence to maximise capacity utilisation of resources
4. Demonstrate the process of production planning

Unit 4.1: Basic Calculations

Unit Objectives

At the end of this unit, students will be able to:

1. Explain the various calculations required for standardisation of cream

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Basic Calculations, Images and Videos of Basic Calculations.

Say

- Good morning trainees. Today, we will cover fundamental mathematical concepts and their application in the context of calculating fat content and performing arithmetic operations.
- The objective of this session is to develop a solid foundation in basic calculations that will be useful in various aspects of dairy processing and related calculations.

Do

- Present the concepts of basic mathematics, emphasizing the importance of understanding numbers, operations, and units of measurement.
- Explain the calculation of fat content, including the formulas and techniques used in the dairy industry.
- Teach arithmetic operations, such as addition, subtraction, multiplication, and division, and their applications in dairy processing scenarios.
- Provide examples and step-by-step explanations for each topic to ensure clarity and understanding.
- Engage the participants in interactive discussions and encourage questions throughout the session.
- Conduct a demonstration or practical activity to apply the learned concepts and calculations in real-life scenarios.

Ask

- What are some examples of situations where basic calculations are important in the dairy processing industry?
- Can you think of any challenges or difficulties you have faced in performing calculations related to fat content or other aspects of dairy processing?

Elaborate

- Basic Mathematics: In the context of dairy processing, basic mathematics refers to foundational mathematical skills such as addition, subtraction, multiplication, and division that are necessary for performing calculations related to ingredient measurements, product quantities, and conversions.
- Calculating Fat Content: Calculating fat content involves determining the percentage of fat present in a sample of a dairy product by measuring its weight and calculating the proportion of fat to the total weight, which is essential for quality control, nutritional labeling, and formulation of dairy products.
- Arithmetic: Arithmetic in the context of dairy processing encompasses more advanced mathematical concepts such as ratios, proportions, and percentages. These skills are applied to calculate ingredient ratios, determine product yields, and ensure accurate formulation of dairy products.

Demonstrate

Demonstrate how to calculate the fat content in a given sample of milk using the appropriate formula and measurements.

Activity

1. **Activity Name:** Fat Content Calculation
2. **Objective:** To practice calculating the fat content in a dairy product sample.
3. **Resources:** Handouts with sample calculations, calculators (optional)
4. **Duration of the activity:** 20 minutes
5. **Instructions:**
    - Divide the trainees into small groups.
    - Distribute the handouts with sample fat content calculation exercises.
    - Instruct the participants to work individually or in pairs to solve the calculations.
    - Encourage them to use the provided formulas and apply the concepts learned in the session.
    - Set a time limit for completing the activity.
    - After the designated time, review the answers together and address any questions or difficulties.
6. **Outcome:** Participants will gain practical experience in calculating the fat content of dairy products and reinforce their understanding of the concepts covered in the session.

Notes for Facilitation

- Create a supportive and interactive learning environment.
- Encourage active participation and engagement from all participants.
- Provide clear explanations and examples to enhance understanding.
- Adapt the pace and complexity of the session to the participants' needs.
- Be patient and responsive to questions and challenges.
- Emphasize the importance of accuracy and precision in calculations, particularly in the context of quality control and product formulation.

- Discuss common units of measurement used in the dairy industry and ensure participants understand their conversions.
- Highlight the significance of proper documentation and record-keeping in maintaining traceability and accountability in calculations and measurements.

Unit 4.2: Factors Affecting Efficiency during Production

Unit Objectives

At the end of this unit, students will be able to:

1. State the factors affecting operation efficiency during production

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Factors Affecting Efficiency during Production, Images and Videos related to Factors Affecting Efficiency during Production.

Say

- Good morning trainees, today we will be discussing the factors that affect efficiency during production.
- We will be covering various factors and discussing how they impact the overall production process.

Do

- Introduce the topic and explain the learning objectives of the session.
- Use presentation slides and handouts to explain each factor and provide examples.
- Use the whiteboard to draw diagrams and provide visual aids to explain complex concepts.
- Conduct case studies to give trainees a chance to apply the concepts they have learned.

Ask

- What factors do you think affect efficiency during production?
- How can we improve efficiency during production?

Elaborate

Factors Affecting Efficiency

Demonstrate

Demonstrate how each factor can impact the production process using visual aids, real-life examples, and case studies.

Activity

1. **Activity Name: Efficiency Improvement Brainstorming**
2. **Objective:** To encourage participants to think creatively and come up with potential solutions for improving efficiency in dairy production.
3. **Resources:** Whiteboard and markers, handouts or worksheets
4. **Duration of the activity:** 20 minutes
5. **Instructions:**
   - Divide the participants into small groups.
   - Provide each group with a worksheet or ask them to use the whiteboard.
   - Ask each group to brainstorm and write down potential strategies, ideas, or improvements that can enhance efficiency in dairy production.
   - Encourage them to think about different factors discussed during the session and come up with practical solutions.
   - After the allotted time, ask each group to share their ideas with the rest of the participants.
   - Facilitate a group discussion to analyze and evaluate the proposed solutions, highlighting the effectiveness and feasibility of each suggestion.
   - Summarize the key findings and emphasize the importance of continuous improvement in enhancing efficiency during production.
6. **Outcome:** Participants will develop a deeper understanding of the factors affecting efficiency and generate practical ideas to improve productivity in dairy processing.

Notes for Facilitation

- Foster an inclusive and participatory learning environment.
- Encourage active engagement and discussion among participants.
- Use examples and real-life scenarios to make the content relatable.
- Be open to different perspectives and encourage critical thinking.
- Emphasize the need for regular equipment maintenance to minimize downtime and optimize production efficiency.
- Highlight the significance of employee training and skill development to enhance performance and reduce errors.
- Discuss the importance of well-designed processes that streamline workflows and minimize waste in order to improve overall efficiency.

Unit 4.3: Plan Production Sequence

Unit Objectives

At the end of this unit, students will be able to:

1. Describe the process of planning production sequence to maximise capacity utilisation of resources
2. Demonstrate the process of production planning

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Plan Production Sequence, Images and Videos related to Plan Production Sequence.

Say

- Good morning trainees today, we will learn about the importance of planning the sequence of production, how process loss affects production, and how to maximize capacity utilization.
- By the end of this class, you will be able to understand how to plan production sequence and optimize efficiency in production.

Do

- Introduce the topic and provide an overview of the learning objectives.
- Use visual aids to explain production sequence and its importance in production.
- Discuss process loss and its impact on production efficiency.
- Explain capacity utilization and how to maximize it in production.
- Engage the participants in discussions and activities related to the topic.

Ask

- What is production sequence, and why is it important in production?
- How does process loss affect production efficiency?

Elaborate

- Production Sequence

  Production sequence refers to the order of steps or processes involved in the production of goods or services. It is important because it affects efficiency, quality, and overall productivity.

- Process Loss

  Process loss is the decrease in production output or efficiency due to waste, rework, or errors. It affects the overall efficiency of production and reduces profitability.

- Capacity Utilization

  Capacity utilization refers to the maximum output that can be produced using available resources. Maximizing capacity utilization can increase efficiency and productivity in production.

Demonstrate

Show examples of production sequence charts or diagrams and explain how they can be used to plan production.

Activity

1. **Activity Name:** Production Sequence Planning
2. **Objective:** To understand how to plan the production sequence for a given product
3. **Resources:** Whiteboard, markers, production sequence charts or diagrams.
4. **Duration of the activity:** 30 minutes
5. **Instructions:**
   - Divide the participants into 4 groups.
   - Provide each group with a product and ask them to plan the production sequence for the product.
   - Ask each group to present their production sequence plan to the rest of the class.
   - Encourage the participants to discuss the advantages and disadvantages of each production sequence plan.
6. **Outcome:** The participants will have a better understanding of how to plan production sequence for a product.

Notes for Facilitation

- Encourage active participation and discussions among the participants.
- Ensure that the participants understand the importance of production sequence, process loss, and capacity utilization in production.
- Provide real-life examples to illustrate the concepts covered in the class.
- Use the activity to reinforce learning and encourage collaboration among the participants.
- Be prepared to answer questions and provide additional resources to the participants if needed.

Answers to Exercises for PHB

1. Arrange the production sequence in the right order.

a. b (Check the availability of raw material)
b. i (Read and understand the production schedule)
c. d (Plan production sequence (efficient utilisation of resources, prioritise urgent orders))
d. c (Plan and allot responsibilities to trained manpower)
e. e (Calculate batch size, machine capacity, and raw material quantity)
f. f (Check the working condition of tools, equipment, and machinery)
g. h (Check the availability of machinery)
h. g (Check the performance of equipment required for the process)
i. a (Execute the process of making dairy products)

2. Match the columns.

a. Utilities v. Water, electricity, refrigeration etc. should be easily available in the processing plant
b. Efficient labour iv. No working hour is wasted
c. Work schedule i. Enhance efficiency and save time and labour
d. Quality of raw material iii. Quality checks must be performed
e. Processing units ii. Proper scheduling of raw material
f. Supply of raw material vi. Speed and efficiency in production

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Food Industry Capacity and Skill Initiative

5. Produce Butter and Ghee

Unit 5.1 - Introduction to Milk

Unit 5.2 - Introduction to Fat Rich Dairy Products

Unit 5.3 - Standard Operating Procedures

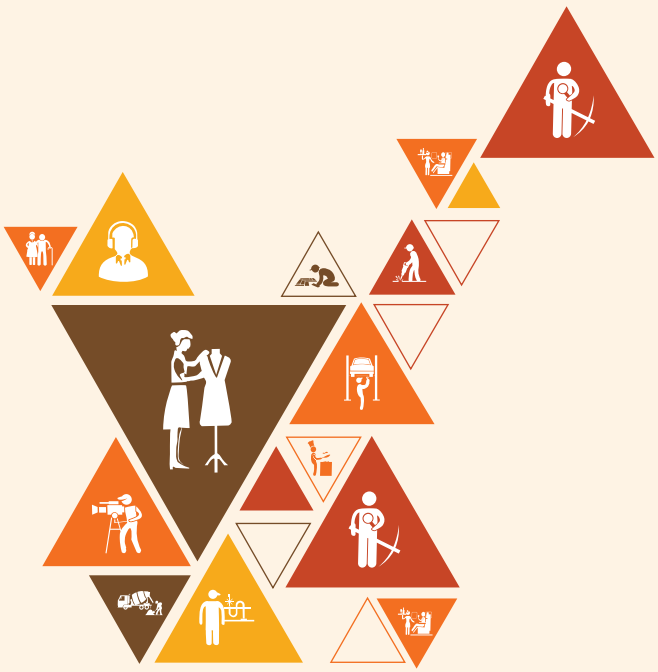
Unit 5.4 - Production of Butter

Unit 5.5 - Packaging and Storage of Butter

Unit 5.6 - Production of Ghee

Unit 5.7 - Packaging and Storage of Ghee

Unit 5.8 - Post Production Cleaning and Maintenance



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Key Learning Outcomes

At the end of this module, the students will be able to:

1. Describe milk
2. State the composition of milk
3. List the different types of milk products
4. State the composition and nutritive value of milk products
5. List the various fat-rich products produced in the dairy industry
6. Explain the standard operating procedures followed in the dairy industry
7. Define butter
8. State the composition of butter
9. State the method of preparing cream for butter manufacturing
10. State the need for neutralisation of cream
11. State the importance of standardisation of cream
12. Explain the method of pasteurising cream
13. State the different types of pasteurisation methods
14. State the method of ripening cream
15. Describe the method of cooling and ageing cream
16. Explain the method of churning cream
17. Explain the method of adding colour to butter
18. State the method of adding salt to butter
19. Describe the quantity and quality of salt to be added
20. Explain the method of adding salt
21. Explain the method of adjusting moisture content in butter
22. State the method of producing butter by continuous method
23. Explain the different processes followed to produce butter by the continuous method
24. Explain the need for packaging butter
25. List the packaging materials used for packing butter
26. Explain the method of packaging and storing butter
27. Define ghee
28. State the various methods of preparing ghee
29. Explain the method of granulating and cooling ghee
30. Explain the method of packaging and storing ghee
31. Arrange for proper cleaning of production area, equipment, and tools used
32. Organise periodic maintenance of all production machineries

Unit 5.1: Introduction to Milk

Unit Objectives

At the end of this unit, students will be able to:

1. Describe milk
2. State the composition of milk
3. List the different types of milk products
4. State the composition and nutritive value of milk products

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Different Milk and its products.

Say

- Good morning trainees today, we will be discussing the nutritional value and energy content of milk.
- By the end of the session, you will have a better understanding of how milk contributes to a healthy diet and how to interpret nutrition labels on milk products.

Do

- Start by introducing yourself and asking the participants to do the same.
- Provide an overview of the session and the topics that will be covered.
- Use handouts or presentation slides to facilitate the session.
- Encourage participation and questions throughout the session.
- End the session by summarizing the key points covered and asking for feedback.

Ask

- What are some benefits of drinking milk?
- What types of milk products do you consume on a regular basis?

Elaborate

Milk: Milk is a nutritious food that is a rich source of calcium, vitamin D, and other nutrients. It has varying energy content depending on the fat content and is a good source of protein for building and repairing muscles and tissues.

Activity

1. **Activity Name:** Milk Nutrition Label Scavenger Hunt
2. **Objective:** To familiarize participants with nutrition labels on milk products and how to interpret them.
3. **Resources:** Nutrition labels from various milk products, handouts, pens/pencils
4. **Duration of the activity:** 30-45 minutes
5. **Steps involved:**
   - Divide participants into groups of 3.
   - Provide each group with a different nutrition label from a milk product.
   - Ask the groups to identify and write down the amounts of calories, fat, protein, and calcium per serving.
   - Once all groups have completed the task, discuss the differences in the nutrition labels and what they mean for the nutritional value of each product.
6. **Outcome:** Participants will have a better understanding of how to interpret nutrition labels on milk products and the nutritional value of different types of milk.

Notes for Facilitation

- Encourage active participation and questions throughout the session.
- Be aware of any dietary restrictions or allergies among the participants when selecting milk samples or planning the activity.
- Provide examples of different types of milk products, such as whole milk, skim milk, almond milk, etc.
- Emphasize the importance of including milk in a balanced diet and the potential health benefits of doing so.
- Make sure to cover any additional topics or questions that arise during the session.
- Provide practical examples to make the session engaging and relatable.
- Explain the ERP software in simple terms and highlight its advantages over traditional record-keeping methods.

Unit 5.2: Introduction to Fat Rich Dairy Products

Unit Objectives

At the end of this unit, students will be able to:

1. List the various fat-rich products produced in the dairy industry

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Fat Rich Dairy Products, Images and Videos related to Fat Rich Dairy Products.

Say

- Good morning trainees today, we will be discussing the importance of including fat-rich dairy products in our diet, their nutritional value, and the different types of fat-rich dairy products available in the market.
- Throughout the session, feel free to ask questions and share your thoughts and experiences with us.
- By the end of this session, you should be able to appreciate the nutritional value of fat-rich dairy products and identify the different types available in the market.

Do

- Begin the presentation by explaining the importance of fat-rich dairy products in our diet and the nutritional value they provide.
- Discuss the different types of fat-rich dairy products available in the market, including cheese, butter, ice cream, and cream.
- Share the nutritional value of each type of fat-rich dairy product, including the vitamins and minerals they contain.
- Use the samples of fat-rich dairy products to give participants a hands-on experience of the products and their taste.
- Hand out the nutritional value handouts and encourage participants to read them and ask questions.

Ask

- What is your favorite type of fat-rich dairy product and why?
- How often do you consume fat-rich dairy products in your diet?

Elaborate

- Fat-rich dairy products
  - Fat-rich dairy products are an important source of nutrients like vitamins, minerals, and essential fatty acids that our body needs.
  - These products provide energy, improve digestion, and promote brain function.
  - Types of fat-rich dairy products include cheese, butter, ice cream, and cream, and each type offers different nutritional benefits.

Demonstrate

Demonstrate the process of making homemade butter or cheese, highlighting the ingredients and steps involved.

Activity

1. **Activity Name:** "Fat-Rich Dairy Product Tasting"
2. **Objective:** To provide participants with a hands-on experience of different types of fat-rich dairy products and their taste
3. **Resources:** Samples of different types of fat-rich dairy products (cheese, butter, ice cream, cream), plates, napkins, and utensils
4. **Duration of the activity:** 15-20 minutes
5. **Instructions:**
   - Set up a tasting station with samples of different types of fat-rich dairy products.
   - Ask participants to taste each product and take notes on the taste, texture, and overall experience.
   - Encourage participants to share their thoughts and experiences with the group.
   - Provide plates, napkins, and utensils for the tasting.
6. **Outcome:** Participants will have a hands-on experience of different types of fat-rich dairy products and their taste, which will help them appreciate the products more and make informed dietary choices.

Notes for Facilitation

- Encourage participation and engagement from all participants.
- Use examples and anecdotes to make the session more relatable and interesting.
- Emphasize the importance of including fat-rich dairy products in a balanced diet.
- Highlight the different types of fat-rich dairy products available in the market and their nutritional value.
- Address any concerns or misconceptions participants may have about fat-rich dairy products, such as their association with weight gain.

Unit 5.3: Standard Operating Procedures

Unit Objectives

At the end of this unit, students will be able to:

1. Explain the standard operating procedures followed in the dairy industry

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Standard Operating Procedures, Images and Videos related to Standard Operating Procedures.

Say

Good morning trainees in this session, we will learn about the importance of SOPs in various industries and how to create effective SOPs.

Do

- Begin the session by asking the trainees what they know about SOPs and their importance in various industries.
- Present a multimedia presentation that covers the basics of SOPs, including their definition, purpose, and benefits.
- Discuss the various types of SOPs and their importance in specific industries.
- Demonstrate how to create an effective SOP, including how to identify the steps in a process, how to write clear and concise instructions, and how to incorporate visual aids.
- Provide trainees with a sample SOP to review and analyze.
- Conduct a group activity where trainees work together to create an SOP for a specific process in their industry.

Ask

- What types of SOPs are used in your industry?
- Why are SOPs important in ensuring quality and consistency in processes?

Elaborate

- SOPs are documented instructions that outline the steps, responsibilities, and quality requirements for performing specific tasks or processes.
- They ensure consistency, efficiency, and quality by providing clear guidelines to employees and reducing the risk of errors or deviations.
- SOPs cover a wide range of areas, including production, safety, maintenance, and quality control.

Demonstrate

Demonstrate the process of creating a simple SOP using a template, highlighting the key sections and elements.

Activity

1. **Activity Name:** Create an SOP
2. **Objective:** To create an effective SOP for a specific process in the trainee's industry
3. **Resources:** Whiteboard, markers, printed copies of sample SOPs
4. **Duration of the activity:** 45 minutes
5. **Instructions:**
    - Divide trainees into 4 groups.
    - Assign each group a specific process to create an SOP for.
    - Provide trainees with the necessary resources, including sample SOPs and access to industry-specific information.
    - Trainees work together to create an effective SOP for the assigned process.
    - Each group presents their SOP to the class for review and feedback
6. **Outcome:** Trainees will have created an effective SOP for a specific process in their industry.

Notes for Facilitation

- Encourage participation and collaboration among trainees during the group activity.
- Ensure that trainees understand the importance of following SOPs and the consequences of deviating from them.
- Provide feedback and guidance during the SOP creation process to ensure that trainees are on the right track.
- Emphasize the importance of regular review and updates of SOPs to ensure their effectiveness.
- Reinforce the need for trainees to incorporate safety and quality checks into their SOPs.

Unit 5.4: Production of Butter

Unit Objectives

At the end of this unit, students will be able to:

1. Define butter
2. State the composition of butter
3. State the method of preparing cream for butter manufacturing
4. State the need for neutralisation of cream
5. State the importance of standardisation of cream
6. Explain the method of pasteurising cream
7. State the different types of pasteurisation methods
8. State the method of ripening cream
9. Describe the method of cooling and ageing cream
10. Explain the method of churning cream
11. Explain the method of adding colour to butter
12. State the method of adding salt to butter
13. Describe the quantity and quality of salt to be added
14. Explain the method of adding salt
15. Explain the method of adjusting moisture content in butter
16. State the method of producing butter by continuous method
17. Explain the different processes followed to produce butter by the continuous method

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Standard Operating Procedures, Images and Videos related to Standard Operating Procedures.

Say

Good morning trainees today we will be learning about the process of making butter from cream.

I will be guiding you through the steps of butter making, starting with the preparation of cream and ending with the continuous method of preparing butter.

Do

- Begin by discussing the topics covered in the session and their importance in the butter-making process.
- Demonstrate the process of butter making from beginning to end, emphasizing each step and the importance of maintaining proper temperatures and conditions.

- Provide hands-on experience for participants to make their own butter.

Ask

- Have you ever made butter before?
- What do you think are the key ingredients needed to make butter?

Elaborate

- Introduction to Butter
- Preparation of Cream
- Neutralisation of Cream
- Pasteurisation of Cream
- Ripening, Cooling, and Ageing Cream
- Churning Cream
- Addition of Colour and Salt
- Continuous Method of Preparing Butter

Demonstrate

Demonstrate the entire process of making butter from cream, starting with the preparation of raw cream and ending with the packaging of the final product. Use visual aids and hands-on demonstrations to enhance learning.

Activity

1. **Activity Name:** Making Butter
2. **Objective:** To provide hands-on experience to participants in making butter.
3. **Resources:** Raw cream, churn, butter muslin, salt, food coloring (optional), butter molds, butter packaging materials.
4. **Duration of the activity:** 60 minutes
5. **Instructions:**
   - Participants will be divided into groups of two or three.
   - Each group will receive a container of raw cream and a churn.
   - Participants will follow the steps to make butter as demonstrated by the facilitator.
   - Once the butter is formed, participants will add salt and food coloring as desired.
   - The butter will then be molded and packaged for take-home
6. **Outcome:** Participants will gain hands-on experience in making butter, and understand the importance of maintaining proper temperature and conditions during the process.

Field Visit

1. **Objective:** To observe butter production and packaging practices in a real-life setting.
2. **Resources:** Transportation to a local dairy or butter production facility.
3. **Time Duration:** Half a day
4. **Instructions:**
    - Take trainees to a local dairy or butter production facility to observe the production process and packaging of butter.
5. **Outcome:** Trainees will gain practical knowledge and see firsthand how butter is produced and packaged.

Notes for Facilitation

- Provide adequate safety equipment and guidelines when working with hot liquids.
- Ensure participants have a clear understanding of food safety guidelines.
- Emphasize the importance of maintaining proper temperature and conditions during the butter-making process.
- Encourage participants to experiment with flavors and colors when making their butter.
- Provide additional resources for participants to learn more about the butter-making process.

Unit 5.5: Packaging and Storage of Butter

Unit Objectives

At the end of this unit, students will be able to:

1. Explain the need for packaging butter
2. List the packaging materials used for packing butter
3. Explain the method of packaging and storing butter

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Packaging and Storage of Butter, Images and Videos related to Packaging and Storage of Butter.

Say

Good morning trainees today, we will learn about the different types of packaging materials used for butter and best practices for storage to maintain its quality and freshness.

Do

- Present the different types of packaging materials and explain their advantages and disadvantages.
- Discuss the different storage methods, temperature and humidity requirements, and the importance of keeping butter away from light and air.
- Demonstrate proper butter packaging techniques and explain how to determine the correct size and type of container for different amounts of butter.
- Distribute handouts with instructions and tips for storing butter, and show videos demonstrating proper storage techniques.

Ask

- How do you currently store butter at home?
- What are some challenges you face in maintaining butter's freshness?

Elaborate

- Packaging materials for butter include foil, paper, plastic, and glass. Each material has its advantages and disadvantages, such as foil being effective at keeping the butter fresh but not being environmentally friendly.
- Butter should be stored in an airtight container or wrapped tightly in plastic wrap or foil, and kept in the refrigerator at a temperature of 32-40°F (0-4°C).
- Correct labeling of butter is important for food safety reasons and to inform customers about any allergens or additives present in the product.

Demonstrate

- Show videos of proper storage techniques, such as keeping butter in the coldest part of the refrigerator or in a butter keeper.
- Demonstrate how to properly wrap butter in parchment paper or plastic wrap, and then store it in an airtight container.

Activity

1. **Activity Name:** Labeling and Packaging Butter
2. **Objective:** To understand the importance of proper packaging and labeling of butter for storage and distribution
3. **Resources:** Butter samples, labeling materials, storage temperature guidelines
4. **Duration of the activity:** 30-45 minutes
5. **Instructions:**
    - Introduce the importance of proper packaging and labeling for butter storage and distribution.
    - Provide samples of different types of butter packaging and discuss the advantages and disadvantages of each.
    - Have participants label their own sample of butter with necessary information, such as expiration date and storage temperature.
    - Discuss the optimal storage temperature and conditions for butter.
    - Ask participants to share their labeled butter samples and discuss the importance of proper labeling for consumers.
6. **Outcome:** Participants will understand the importance of proper packaging and labeling for butter storage and distribution.

Notes for Facilitation

- Make sure to emphasize the importance of labeling and packaging for both consumer safety and product quality.
- Use examples and visuals to help illustrate the differences between packaging types and their advantages/disadvantages.
- Encourage participants to ask questions and participate in discussions.
- Be sure to review the optimal storage conditions for butter, and emphasize the importance of proper temperature and storage conditions.
- Discuss the implications of improper labeling and packaging, such as consumer confusion and product spoilage.

Unit 5.6: Production of Ghee

Unit Objectives

At the end of this unit, students will be able to:

1. Define ghee
2. State the various methods of preparing ghee
3. Explain the method of granulating and cooling ghee

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Packaging and Storage of Butter, Images and Videos related to Packaging and Storage of Butter.

Say

Good morning trainees today we will be learning about the process of Production of Ghee.

Do

- Begin with an introduction to ghee, its origin, and its uses.
- Explain the process of granulation and cooling of ghee, including the factors affecting the quality of ghee.
- Demonstrate the process of production of ghee step-by-step, using the equipment and raw materials provided.
- Distribute handouts on “Steps for Production of Ghee” and allow participants to ask questions.

Ask

- What is ghee and what are its uses?
- How is ghee different from butter?

Elaborate

- Introduction to Ghee: Ghee is a type of clarified butter that is commonly used in Indian cuisine. It has a high smoke point, making it ideal for frying and sautéing.

- Granulation and Cooling of Ghee: After the butter has been melted, the milk solids are removed by straining. The remaining liquid is then boiled until the water evaporates, and the butterfat granulates. The granules are then strained and cooled to produce ghee.

Demonstrate

Demonstrate the process of production of ghee, step-by-step, using the equipment and raw materials provided.

Activity

1. **Activity Name: Ghee Production**
2. **Objective: To practice the process of production of ghee**
3. **Resources:** Raw materials required for production of ghee (butter, cream, etc.), equipment required for production of ghee (pot, spoon, strainer, etc.)
4. **Duration of the activity:** 30 minutes
5. **Instructions:**
   - Divide participants into groups of 2-3.
   - Provide each group with the necessary raw materials and equipment to produce ghee.
   - Instruct them to follow the steps provided in the handout and produce ghee.
   - Monitor and assist the groups as required.
6. **Outcome:** Participants will have hands-on experience in producing ghee, which will help them to understand the process better.

Notes for Facilitation

- Ensure that the equipment and raw materials required for the session are available and ready to use.
- Encourage participants to ask questions and clarify any doubts they may have.
- Emphasize the importance of safety during the process of production of ghee.
- Provide clear instructions for the activity and monitor the groups closely.
- Discuss the quality of the ghee produced by each group and provide feedback.

Unit 5.7: Packaging and Storage of Ghee

Unit Objectives

At the end of this unit, students will be able to:

1. Explain the method of packaging and storing ghee

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Packaging and Storage of Ghee, Images and Videos related to Packaging and Storage of Ghee.

Say

Good morning trainees in this class, we will discuss the different packaging materials and storage containers for ghee, and the process of granulation and cooling of ghee.

Do

- Start by introducing the class topic and objectives.
- Use the handout to guide the discussion on the packaging and storage of ghee, and the granulation and cooling process.
- Show the sample packaging materials and storage containers and discuss the advantages and disadvantages of each.
- Conduct a taste test using the ghee samples to demonstrate the effects of proper packaging and storage.

Ask

- What are some common packaging materials and storage containers used for ghee?
- How does proper packaging and storage affect the quality of ghee?
- What is the process of granulation and cooling in ghee production?

Elaborate

- Packaging and Storage of Ghee
- Tests Done for Butter
- Tests Done for Ghee

Demonstrate

Demonstrate the process of granulation and cooling of ghee using a sample batch.

Activity

1. **Activity Name:** Packaging and Storage Experiment
2. **Objective:** To understand the effects of different packaging materials and storage containers on ghee quality.
3. **Resources:** Sample ghee, different packaging materials, and storage containers
4. **Duration of the activity:** 30 minutes
5. **Instructions:**
   - Divide the class into 4 groups.
   - Provide each group with a sample of ghee, different packaging materials, and storage containers.
   - Ask each group to package the ghee samples in different packaging materials and store them in different storage containers.
   - After 24 hours, conduct a taste test of the ghee samples to evaluate the effects of different packaging and storage on ghee quality.
6. **Outcome:** This activity will help trainees understand the importance of proper packaging and storage of ghee.

Notes for Facilitation

- Encourage participation and discussion among trainees.
- Provide clear instructions and expectations for activities.
- Encourage trainees to ask questions and seek clarification.
- Discuss the advantages and disadvantages of different packaging materials and storage containers.
- Emphasize the importance of proper packaging and storage for maintaining ghee quality.
- Provide examples of common packaging and storage practices in the industry.

Unit 5.8: Post Production Cleaning and Maintenance

Unit Objectives

At the end of this unit, students will be able to:

1. Arrange for proper cleaning of production area, equipment, and tools used
2. Organise periodic maintenance of all production machineries

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Post Production Cleaning and Maintenance, Images and Videos related to Post Production Cleaning and Maintenance.

Say

- Good morning trainees in this session, we will be discussing the importance of maintaining a clean and hygienic production area, and the proper methods for cleaning and sanitizing equipment and surfaces.
- Maintaining a clean production area is crucial for ensuring product safety and quality. As food manufacturers, it is our responsibility to ensure that our products are free from any harmful contaminants.
- Throughout the session, we will be discussing the best practices for cleaning and maintaining equipment and surfaces, as well as identifying potential areas of contamination.

Do

- Start by providing an overview of the session and the importance of post production cleaning and maintenance.
- Discuss the different types of cleaning agents and their uses, as well as the proper equipment to use for cleaning.
- Review the cleaning procedures for equipment and surfaces, including the use of appropriate cleaning agents, scrubbing and rinsing methods, and the importance of drying surfaces after cleaning.
- Demonstrate the proper cleaning methods using visual aids such as posters or videos.
- Conduct an activity where participants practice cleaning and sanitizing equipment and surfaces using the proper methods.

Ask

- Why is maintaining a clean production area important?
- What are some potential areas of contamination in a production area?

Elaborate

- Post production cleaning is a critical step in ensuring the safety and quality of our products. It involves cleaning and sanitizing all equipment and surfaces that come into contact with our products.
- Proper cleaning methods involve using the appropriate cleaning agents, scrubbing and rinsing techniques, and ensuring that all surfaces are thoroughly dried after cleaning.
- Identifying potential areas of contamination and implementing appropriate cleaning measures can help to prevent the spread of harmful bacteria and other contaminants.

Demonstrate

Demonstrate the proper cleaning and sanitizing methods using visual aids such as posters or videos.

Activity

1. **Activity Name:** Equipment and Surface Cleaning
2. **Objective:** To practice the proper cleaning and sanitizing methods for equipment and surfaces.
3. **Resources:** Cleaning supplies such as cleaning agents, sponges, towels, and gloves
4. **Duration of the activity:** 30 minutes
5. **Instructions:**
   - Divide participants into 4 groups.
   - Assign each group a piece of equipment or a surface to clean and sanitize.
   - Provide each group with the necessary cleaning supplies.
   - Instruct participants to clean and sanitize their assigned equipment or surface using the proper cleaning methods discussed in the session.
   - Observe and provide feedback as needed.
6. **Outcome:** Participants will practice and demonstrate the proper cleaning and sanitizing methods for equipment and surfaces.

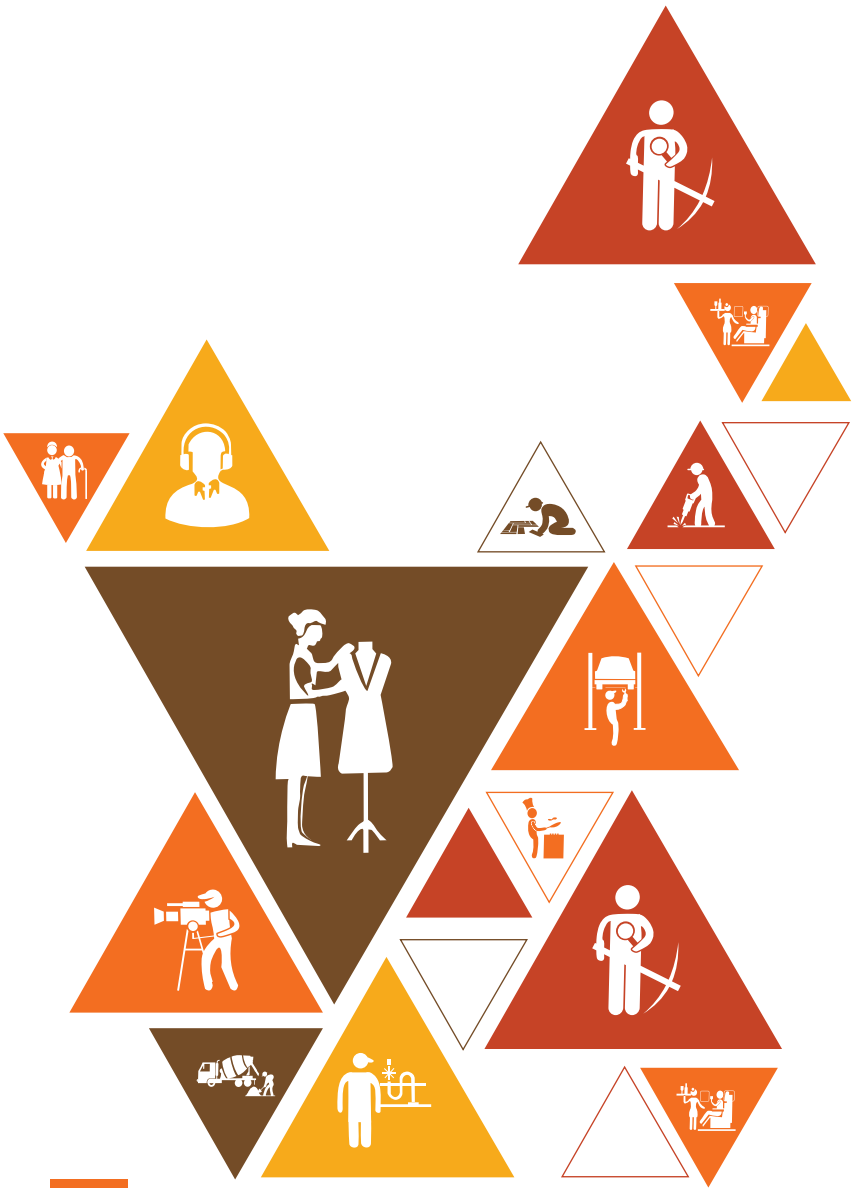
Notes for Facilitation

- Encourage active participation and engagement from all participants.
- Emphasize the importance of proper cleaning and sanitizing methods for ensuring product safety and quality.
- Provide opportunities for participants to ask questions and clarify any information presented in the session.
- Highlight the potential consequences of inadequate cleaning and maintenance, including the risk of product recalls and negative impacts on brand reputation.
- Emphasize the importance of following cleaning and maintenance protocols to prevent cross-contamination and ensure a safe and hygienic production environment.

Answers to Exercises for PHB

1. Fill in the blanks with the correct option.

a. iii. 5
b. ii. sugar
c. ii. casein
d. iv. Churning
e. i. 2%
f. ii. Arithmetical calculations, Pearson's square method
g. ii. 24-48
h. iv. churning
i. ii. rancidity
j. i. 6-12



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कौशल गुणवत्ता प्रगति

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GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

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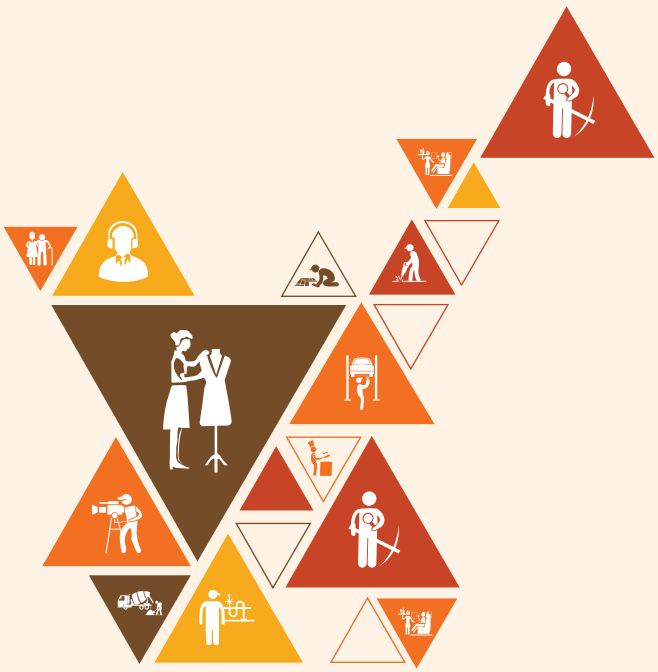
FICSI
Food Industry Capacity and Skill Initiative

6. Complete Documentation and Record Keeping Related to Butter and Ghee Production

Unit 6.1 - Documentation and Record Keeping



FIC/N2012

Key Learning Outcomes 

At the end of this module, the students will be able to:

1. State the need for documenting and maintaining records of raw materials, process, and finished products
2. State the method of documenting and recording the details of raw material to final finished product
3. Observe the various facilities, machineries in the food processing industry

Unit 6.1: Documentation and Record Keeping

Unit Objectives

At the end of this unit, students will be able to:

1. State the need for documenting and maintaining records of raw materials, process, and finished products
2. State the method of documenting and recording the details of raw material to final finished product
3. State the functions of ERP system.

Resources to be Used

Participant handbook, Projector, Laptop/Computer with the internet, White Board, Flip Chart, Markers, PowerPoint presentation on Documentation and Record Keeping, Images and Videos of Documentation and Record Keeping.

Say

- Welcome everyone to the session on Documentation and Record Keeping.
- Today, we will learn about the importance of documentation, how to keep records effectively, and an introduction to ERP solutions.
- By the end of the session, you will understand the benefits of good record keeping and how to use ERP software to streamline your documentation processes.

Do

- Begin the session by introducing the topic of documentation and record keeping.
- Use visual aids and real-life examples to demonstrate the importance of accurate and detailed record keeping.
- Provide an overview of the types of documentation used in various industries and why they are important.
- Discuss the key principles of effective record keeping, such as accuracy, consistency, and completeness.
- Introduce ERP solutions and how they can be used to improve documentation and record keeping processes.

Ask

- What are some examples of documentation that you encounter in your work?
- How do you currently keep track of important information and data?

Elaborate

- Need for Documentation
- How to Keep Records?
  - Product quality can be maintained only when
  - Every batch of food is given a batch number. This number is recorded in

Demonstrate

Show examples of how ERP solutions have been used to improve documentation processes in various industries.

Activity

1. **Activity Name:** Documenting a Business Process
2. **Objective:** To practice creating accurate and complete documentation for a business process
3. **Resources:** Handouts and worksheets
4. **Duration of the activity:** 30 minutes
5. **Steps involved:**
   - Divide participants into groups of three or four.
   - Assign each group a specific business process to document.
   - Provide handouts and worksheets for participants to use as templates for their documentation.
   - Encourage participants to work collaboratively to ensure accuracy and completeness of their documentation.
   - After 25 minutes, ask each group to present their documentation to the rest of the class.
6. **Outcome:** Participants will have practical experience in creating accurate and complete documentation for a business process.

Notes for Facilitation

- Provide ample time for questions and discussion throughout the session.
- Use real-life examples to demonstrate the importance of accurate and detailed record keeping.
- Encourage participants to share their own experiences and insights on documentation and record keeping.
- Emphasize the importance of accuracy, completeness, and consistency in record keeping.
- Ensure that participants have a clear understanding of how to use the ERP software before the end of the session.

Answers to Exercises for PHB

Tick the correct options.

a. What is the need for documentation?

i. It gives detailed knowledge about the running of a business.

ii. It helps to control product quality.

iii. It helps to keep track of the money invested in the business.

iv. It helps to identify the separate costs of raw material or product ingredients.

v. It helps to identify the production cost of a particular process.

vi. It helps in raw material storage.

vii. It helps to ensure that quality assurance procedures are followed.

viii. It helps to ensure that the production unit is running smoothly/effectively.

ix. It works as evidence for legal procedures.

b. Production records keep a log of.

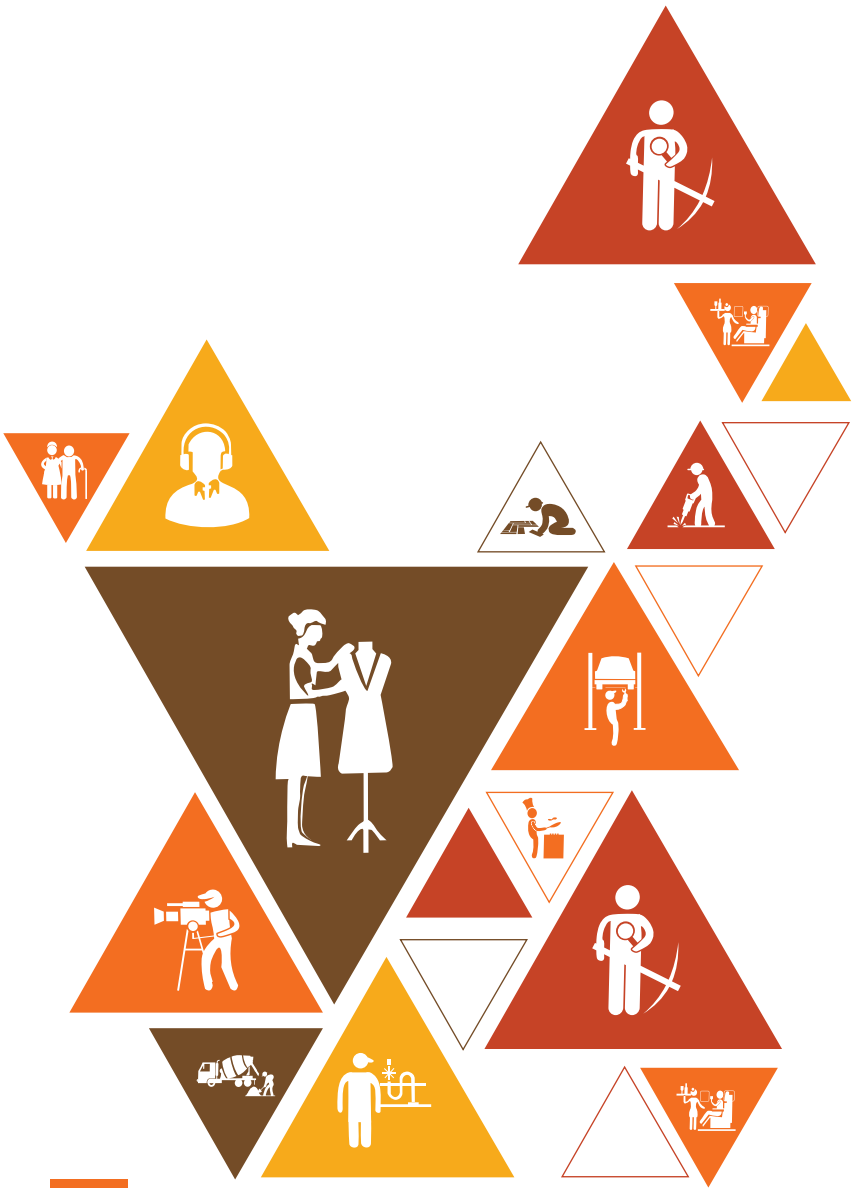
i. The quantity and type of raw materials.

iii. The quantity and type of ingredients used.

iv. The processing conditions in which production took place (e.g. the temperature set or the air pressure applied).

Match the column:

a. Every production process completed is given a number - ii. Batch number
b. The details of raw material procurement is noted - i. Stock control books
c. The details of production process is noted - v. Processing log books
d. The details of product sales is recorded - vi. Sales and distribution log
e. Records serve as - iv. Legal evidence
f. Properly maintained records help to identify whether - iii. Quality procedures are followed



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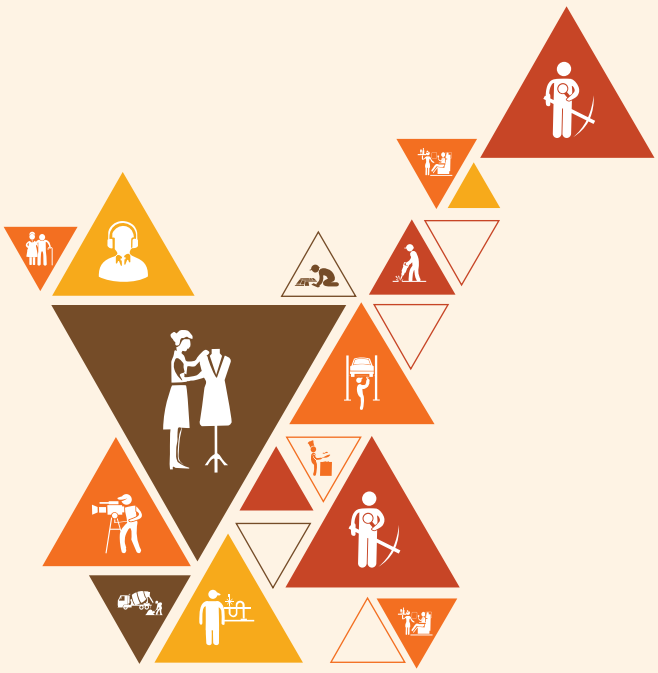
7. Employability Skills



DGT/VSQ/N0101

Scan the QR codes or click on the link to watch the related videos

https://www.skillindiadigital.gov.in/content/list

Employability Skills

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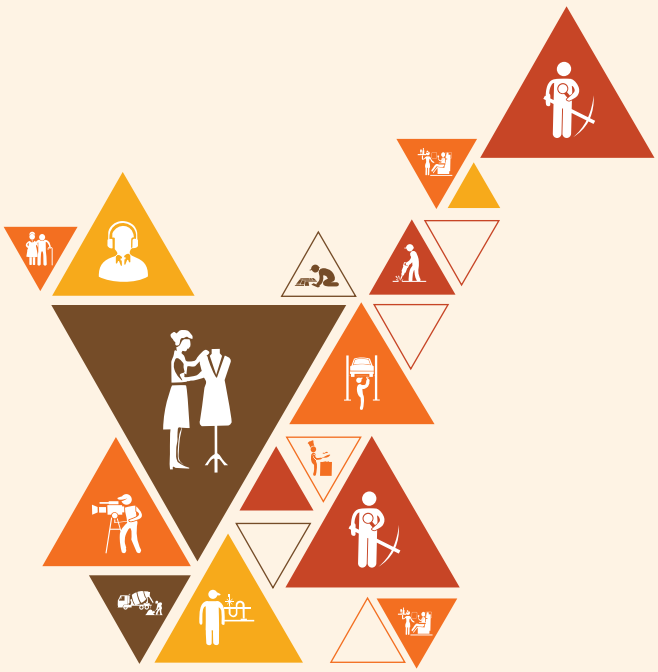
8. Annexures

Annexure I: Training Delivery Plan

Annexure II: Assessment Criteria



Annexure I

Training Delivery Plan

Training Delivery Plan			
Program Name:	Butter and Ghee Processing Operator		
Qualification Pack Name & Ref. ID	FIC/Q2003 V3.0		
Version No.	3.0	**Version Update Date**	29-07-2021
Pre-requisites to Training (if any)	1. Food standards and regulations 2. Operating different types of dairy processing equipment 3. Packaging technology 4. GMP 5. HACCP 6. QMS 7. Computer basics and ERP system followed by the organization 8. Training in Food Safety Standards and Regulations (as per FSSAI) (Mandatory)		
Training Outcomes	**By the end of this program, the participants will be able to:** 1. Maintain work area and process machinery for baking appropriately 2. Prepare for production of bakery products as per production needs 3. Prepare bakery products as per standard work practices 4. Document and record necessary documents 5. Apply safety, hygiene and sanitation practices at the workplace effectively		

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
1	**Introduction to the training program**	**Role of Butter & Ghee Processing Technician in the Food Processing Industry**	• Introduce each other and build rapport with fellow participants and the trainer. • Explain food processing. • List the various sub-sectors of food processing industry • Discuss the future trends and career growth opportunities available to butter & ghee processing technician in the food processing industry.	FIC/N2009, v1.0 KU1, KU2, KU3, KU4, KU5	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	4 Theory (4:00) Practical (0:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			• Summarize the key roles and responsibilities of butter & ghee processing technician. • Discuss the organizational standards and norms.				
2	**Prepare and maintain work area and process machineries**	**Cleaning and Sanitization of Workarea**	• Describe the methods of cleaning and sanitization. • List the materials and equipment used in the cleaning and maintenance of the work area. • Describe the methods of cleaning and sanitization. • Demonstrate CIP method of cleaning. • Demonstrate SIP method of cleaning.	FIC/N2009, v1.0 PC1, KU8, KU9, KU10	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook, Motor(AC); Different Size of Stainless Steel (SS) Pipes; Different Size of Angles (SS); Different Size of Joint (SS); Different Size of Valves (SS); Plates of Heat Exchanger (SS); Muslin Cloth; Weighing Machine; Milk Stirrer; Nutbolts (differentSizes); Cane (Aluminum/SS); Thermometer; Test Tube (Glass); Test Tube Holder;	8 Theory (3:00) Practical (5:00)
		Preparing Work Area	• Demonstrate the process of preparing the work area for scheduled production. • Exhibit that the work area is safe and hygienic for food processing	FIC/N2009, v1.0 PC2			8 Theory (3:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Waste Disposal Techniques	• Explain the method of managing and disposing waste material. • Dispose of waste materials in accordance with organization standards and industry requirements to maintain a safe and hygienic work environment.	FIC/N2009, v1.0 PC3		Gas with Burner; Measurement Cane; Utensils to Heat the Milk; Joints/ angles Opener, Pasteurizer, Opener, Shredder, Blender, Feeder, Silos, Separators, Dryers, Evaporators, Clarifier, Mixer, Extruder, Texturizer, Scraped Surface Heat Exchanger, Odorometers, Churner, Balance tank, Plate Heat Exchanger, Concentrator, Separator, Homogenizer, Pasteurizer, Timer, Vacuum Chamber, Muslin Cloth; Milk Sampling Bottle; Milk Stirrer; Gas with Burner; Knives, Spatulas, Packing Wrap Rolls, Measuring Cup and Spoons, Utensils, Digital Hygrometer	8 Theory (3:00) Practical (5:00)
		Working and Performance of Machineries	• Assess the working and performance of all machineries and tools used for the process, including filter, homogenizer, pasteurizer, separator, clarifier, cutter, packaging machines, etc.	FIC/N2009, v1.0 PC4			8 Theory (3:00) Practical (5:00)
		Cleaning and Sanitization of Machineries	• Clean process machineries using recommended cleaning agents and sanitizers. • List the common detergents and sanitizers used in cleaning machineries.	FIC/N2009, v1.0 PC5			8 Theory (3:00) Practical (5:00)
		Preaperign Tools and Machines for Production	• Identify and organise the necessary tools required for process. • Prepare the machines and tools required for production. • Demonstrate how to use tools safely.	FIC/N2009, v1.0 PC6, PC8			8 Theory (3:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Maintainence of Process Machineries	• Demonstrate the process of lubricating machineries. • Perform minor repairs and faults in process machineries. • Explain the maintenance procedure to be followed. for dairy processing machineries before starting production. • List the different types of maintenance procedures.	FIC/N2009, v1.0 PC7, KU11			8 Theory (3:00) Practical (5:00)
3	**Preparation for production of butter**	**Analysing Production Order**	• Analyse the production order received from the supervisor. • Describe the process of planning production sequence to maximize capacity utilization of resources.	FIC/N2010, v1.0 PC1	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook, Motor (AC); Different Size of Stainless Steel (SS) Pipes; Different Size of Angles (SS); Different Size of Joint (SS); Different Size of Valves (SS); Plates of Heat Exchanger (SS); Muslin Cloth; Weighing Machine; Milk Stirrer; Nut bolts (different Sizes);	7 Theory (2:00) Practical (5:00)
		Functioning and Performance of Machineries	• Analyze the functioning and performance of all machineries required for the production process. • Report the malfunction of the machine to the supervisor.	FIC/N2010, v1.0 PC2, PC3			8 Theory (3:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Optimal Utilization of Resources	• Determine the process time required to ensure optimal utilization of machinery and manpower for each stage of production. • Assign tasks and responsibilities to assistants and helpers	FIC/N2010, v1.0 PC4, PC5	Cane (Aluminum/SS); Thermometer; Test Tube(-Glass); Test Tube Holder; Gas with Burner; Measurement Cane; Utensils to Heat the Milk; Joints/angles Opener, pasteurizer, Opener, Shredder, Blender, Feeder, Silos, Separators, Dryers, Evaporators, Clarifier, Mixer, Extruder, Texturizer, Scraped Surface Heat Exchanger, Odorometers, Churner, Balance tank, Plate Heat Exchanger, Concentrator, Separator, Homogenizer, Pasteurizer, Timer, Vacuum Chamber, Muslin Cloth; Milk Sampling Bottle; Milk Stirrer; Gas with Burner; Knives, Spatulas, Packing Wrap Rolls, Measuring Cup and Spoons, Utensils, Digital Hygrometer		8 Theory (3:00) Practical (5:00)
		Handling Raw Material	• Explain the importance of referring the process chart/product flow chart/ formulation chart for product(s) produced. • Show how to check the quality of raw materials by verifying the quality analysis report and assessing its physical parameters.	FIC/N2010, v1.0 PC6, PC7, KU9			8 Theory (3:00) Practical (5:00)
		Assembling Process Equipment for Production	• Demonstrate the process of connecting pipes between holding tanks and process equipment. • Apply appropriate techniques to assemble fittings, valves, bowls, impeller shaft, strainers and other parts to equipment to prepare for production. • Demonstrate how to start machine and check the working condition and performance of the machine.	FIC/N2010, v1.0 PC8, PC9, PC10			8 Theory (2:00) Practical (6:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Maintaining Equipment Functionality	• Apply problem-solving skills to make minor adjustments and repairs to production equipment as needed. • Identify and organise the tools accessible to attend repairs/ faults in case of breakdown.	FIC/N2010, v1.0 PC11, PC12, KU10, KU11, KU12, KU13, KU14			8 Theory (2:00) Practical (6:00)
4	**Preparation for production of ghee**	**Analysing Production Order**	• Analyse the production order received from the supervisor. • Describe the process of planning production sequence to maximize capacity utilization of resources.	FIC/N2010, v1.0 PC1	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook, Motor (AC); Different Size of Stainless Steel (SS) Pipes; Different Size of Angles (SS); Different Size of Joint (SS); Different Size of Valves (SS); Plates of Heat Exchanger (SS); Muslin Cloth; Weighing Machine; Milk Stirrer; Nut bolts (different Sizes); Cane (Aluminum/ SS);	8 Theory (2:00) Practical (6:00)
		Functioning and Performance of Machineries	• Analyze the functioning and performance of all machineries required for the production process. • Report the malfunction of the machine to the supervisor.	FIC/N2010, v1.0 PC2, PC3			7 Theory (2:00) Practical (5:00)
		Optimal Utilization of Resources	• Determine the process time required to ensure optimal utilization of machinery and manpower for each stage of production. • Assign tasks and responsibilities to assistants and helpers	FIC/N2010, v1.0 PC4, PC5			7 Theory (2:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Handling Raw Material	• Explain the importance of referring the process chart/ product flow chart/ formulation chart for product(s) produced • Show how to check the quality of raw materials by verifying the quality analysis report and assessing its physical parameters	FIC/N2010, v1.0 PC6, PC7, KU9		Thermometer; Test Tube(Glass); Test Tube Holder; Gas with Burner; Measurement Cane; Utensils to Heat the Milk; Joints/ angles Opener, pasteurizer, Opener, Shredder, Blender, Feeder, Silos, Separators, Dryers, Evaporators, Clarifier, Mixer, Extruder, Texturizer, Scraped Surface Heat Exchanger, Odorometers, Churner, Balance tank, Plate Heat Exchanger, Concentrator, Separator, Homogenizer, Pasteurizer, Timer, Vacuum Chamber, Muslin Cloth; Milk Sampling Bottle; Milk Stirrer; Gas withBurner; Knives, Spatulas, Packing Wrap Rolls, Measuring Cup and Spoons, Utensils, Digital Hygrometer	7 Theory (2:00) Practical (5:00)
		Assembling Process Equipment for Production	• Demonstrate the process of connecting pipes between holding tanks and process equipment. • Apply appropriate techniques to assemble fittings, valves, bowls, impeller shaft, strainers and other parts to equipment to prepare for production. • Demonstrate how to start machine and check the working condition and performance of the machine.	FIC/N2010, v1.0 PC8, PC9, PC10			7 Theory (2:00) Practical (5:00)
		Maintaining Equipment Functionality	• Apply problem-solving skills to make minor adjustments and repairs to production equipment as needed. • Identify and organise the tools accessible to attend repairs/ faults in case of breakdown.	FIC/N2010, v1.0 PC11, PC12, KU10, KU11, KU12, KU13, KU14			7 Theory (2:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
5	**Production of Butter**	**Producing Cream**	• Demonstrate the process of producing cream.	FIC/N2011, v1.0 PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8, PC9, KU8, KU9, KU10, KU11, KU12, KU13, KU14, KU15, KU16, KU17, KU18	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook, Motor (AC); Different Size of Stainless Steel (SS) Pipes; Different Size of Angles (SS); Different Size of Joint (SS); Different Size of Valves (SS); Plates of Heat Exchanger (SS); Muslin Cloth; Weighing Machine; Milk Stirrer; Nut bolts (different Sizes); Cane (Aluminum/ SS); Thermometer; Test Tube(-Glass); Test Tube Holder; Gas with Burner; Measurement Cane; Utensils to Heat the Milk;	8 Theory (3:00) Practical (5:00)
		Production of Butter	• Discuss the production process of butter. • Describe quality parameters analyzed in butter production. • Demonstrate the process of producing butter.	FIC/N2011, v1.0 PC9, PC10, PC11, PC12, PC13, PC14, PC15, PC16, PC17, PC18, PC19			8 Theory (3:00) Practical (5:00)
		Packing of Butter	• List the factors to consider during the packing of butter. • List the materials used for packaging butter.	FIC/N2011, v1.0 PC20, PC21, PC22, PC23, KU21			8 Theory (2:00) Practical (6:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Post production cleaning and regular maintenance of equipments	• Describe post production cleaning methods and waste management procedures. • Demonstrate the process of cleaning the work area and machineries after production.	FIC/N2011, v1.0 PC37, PC38, PC39, PC40, KU19, KU20, KU22, KU23, KU24		Joints/angles Opener, pasteurizer, Opener, Shredder, Blender, Feeder, Silos, Separators, Dryers, Evaporators, Clarifier, Mixer, Extruder, Texturizer, Scraped Surface Heat Exchanger, Odorometers, Churner, Balance tank, Plate Heat Exchanger, Concentrator, Separator, Homogenizer, Pasteurizer, Timer, Vacuum Chamber, Muslin Cloth; Milk Sampling Bottle; Milk Stirrer; Gas with Burner; Knives, Spatulas, Packing Wrap Rolls, Measuring Cup and Spoons, Utensils, Digital Hygrometer	8 Theory (2:00) Practical (6:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
6	**Production of Ghee**	**Understanding the Production Process**	• Discuss the production process of ghee. • Demonstrate the process of producing ghee.	FIC/N2011, v1.0 PC24, PC25, PC26, PC27, PC28, PC29, PC30, PC31, PC32, KU8, KU9, KU10, KU11, KU12, KU13, KU14, KU15, KU16, KU17, KU18	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook, Motor (AC); Different Size of Stainless Steel (SS) Pipes; Different Size of Angles (SS); Different Size of Joint (SS); Different Size of Valves (SS); Plates of Heat Exchanger (SS); Muslin Cloth; Weighing Machine; Milk Stirrer; Nut bolts (different Sizes); Cane (Aluminum/ SS); Thermometer; Test Tube(-Glass); Test Tube Holder; Gas with Burner; Measurement Cane; Utensils to Heat the Milk;	7 Theory (2:00) Practical (5:00)
		Quality Parameters	• Describe quality parameters analyzed in ghee production.	FIC/N2011, v1.0 FIC/N2011, v1.0 PC24, PC25, PC26, PC27, PC28, PC29, PC30, PC31, PC32, KU8, KU9, KU10, KU11, KU12, KU13, KU14, KU15, KU16, KU17, KU18			7 Theory (2:00) Practical (5:00)
		Ghee Packaging	• List the factors to consider during the packing of ghee. • List the materials used for packaging ghee. • Discuss the importance of reporting malfunction/ discrepancies/ concerns to department supervisor for immediate action.	FIC/N2011, v1.0 PC33, PC34, PC35, PC36, KU21			7 Theory (2:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Post production cleaning and Waste Management	• Demonstrate the process of cleaning the work area and machineries after production. • Describe post-production cleaning methods and waste management procedures.	FIC/N2011, v1.0 PC37, PC38, PC39, PC40, KU19, KU20, KU22, KU23, KU24		Joints/angles Opener, pasteurizer, Opener, Shredder, Blender, Feeder, Silos, Separators, Dryers, Evaporators, Clarifier, Mixer, Extruder, Texturizer, Scraped Surface Heat Exchanger, Odorometers, Churner, Balance tank, Plate Heat Exchanger, Concentrator, Separator, Homogenizer, Pasteurizer, Timer, Vacuum Chamber, Muslin Cloth; Milk Sampling Bottle; Milk Stirrer; Gas with Burner; Knives, Spatulas, Packing Wrap Rolls, Measuring Cup and Spoons, Utensils, Digital Hygrometer	7 Theory (2:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
7	**Complete documentation and record keeping**	**Document and maintain records of raw materials for butter and ghee production**	• State the importance ofd documenting and maintaining records of raw material processed such as name of raw material, tag details, supplier details, receiving date/ date of manufacture, expiry date, quality parameters, internal quality analysis report, etc., as per company standards. • Discuss how to maintain record of observations (if any) related to raw materials. • Input raw material details into the ERP system to maintain a record for future reference. • Analyze and verify documents to track raw materials processed from finished products to raw materials, in the event of quality concerns or for quality management system audits.	FIC/N2012, v1.0 PC1, PC2, PC3, PC4, KU9, KU10, KU11, KU12, KU13, KU14	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook, Motor (AC); Different Size of Stainless Steel (SS) Pipes; Different Size of Angles (SS); Different Size of Joint (SS); Different Size of Valves (SS); Plates of Heat Exchanger (SS); Muslin Cloth; Weighing Machine; Milk Stirrer; Nut bolts (different Sizes); Cane (Aluminum/ SS); Thermometer; Test Tube(-Glass); Test Tube Holder; Gas with Burner; Measurement Cane; Utensils to Heat the Milk; Joints/ angles	8 Theory (3:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Document and maintain records of production and process parameters for butter and ghee production Part - 1	• Document production details such as the products handled, production sequence, equipment and machinery details, efficiency and capacity utilization of equipment. • Document process details such as type of raw material used, process parameters, temperature, time, pressure, etc. (as applicable) for entire production in process chart or production log for all products produced. • Document batch size, production yield, and wastage of raw materials, energy utilization and final products produced.	FIC/N2012, v1.0 PC5, PC6, PC7, KU9, KU10, KU11		Opener, pasteurizer, Opener, Shredder, Blender, Feeder, Silos, Separators, Dryers, Evaporators, Clarifier, Mixer, Extruder, Texturizer, Scraped Surface Heat Exchanger, Odorometers, Churner, Balance tank, Plate Heat Exchanger, Concentrator, Separator, Homogenizer, Pasteurizer, Timer, Vacuum Chamber, Muslin Cloth; Milk Sampling Bottle; Milk Stirrer; Gas-with Burner; Knives, Spatulas, Packing Wrap Rolls, Measuring Cup and Spoons, Utensils, Digital Hygrometer	8 Theory (3:00) Practical (5:00)
		Document and maintain records of production and process parameters for butter and ghee production Part - 2	• State the importance of maintaining record of observations (if any) or deviations related to process and production. • Illustrate the process to load the production and process details in ERP for future reference	FIC/N2012, v1.0 PC8, PC9, PC10, KU12, KU13, KU14			7 Theory (2:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			• Explain how to verify documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits.				
		Document and maintain records of finished products for butter and ghee production	• Document and maintain records of the types of finished products produced. • Document finished products details such as batch number, time of packing, date of manufacture, date of expiry, other label details, primary and secondary and packaging materials for all finished products, storage conditions, etc. as per company standards. • Discuss how to maintain record of observations or deviations (if any) related to finished products. • Demonstrate loading of finished product details in ERP for future reference. • Explain how to verify the documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits.	FIC/N2012, v1.0 PC11, PC12, PC13, P C14, PC15, KU9, KU10, KU11, KU12, KU13, KU14			7 Theory (2:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
8	**Ensuring food safety, personal hygiene and workplace sanitation**	**Maintaining Food Safety and Hygiene in Food Production**	• Apply food safety and hygiene procedures followed in the organization to ensure compliance with regulatory requirements. • Ensure personal hygiene by use of gloves, hairnets, masks, ear plugs, goggles, shoes, etc. • Ensure hygienic production of food by inspecting raw materials, ingredients, finished • products etc. for compliance to physical, chemical and microbiological parameters. • Show how to pack products in appropriate packaging materials, label and store them in designated area, free from pests, flies and infestations.	FIC/N9001, v 1.0 PC1, PC2, PC3, PC4, KU8, KU9, KU10, KU14	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook, Motor (AC); Different Size of Stainless Steel (SS) Pipes; Different Size of Angles (SS); Different Size of Joint (SS); Different Size of Valves (SS); Plates of Heat Exchanger (SS); Muslin Cloth; Weighing Machine; Milk Stirrer; Nut bolts (different Sizes); Cane (Aluminum/ SS); Thermometer; Test Tube(-Glass); Test Tube Holder; Gas with Burner; Measurement Cane; Utensils to Heat the Milk;	8 Theory (3:00) Practical (5:00)
		Safe and Effective Food Processing	• Demonstrate the procedureto clean, maintain and monitor food processing equipment periodically, using it only for the specified purpose. • Utilize safety equipment such as fire extinguisher, eye wash unit, and first aid kit when required to maintain a safe working environment.	FIC/N9001, v 1.0 PC5, PC6, PC7, PC8, PC9, KU19, KU20, KU21, KU33			7 Theory (2:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			• State the importance of following housekeeping practices by having designated area for machines/ tools. • Explain the sifnificance of following industry standards like GMP, HACCP and product recall process. • Attend training on hazard management to identify physical, chemical, and biological hazards in food processing and apply measures to control and prevent them.			Joints/angles Opener, pasteurizer, Opener, Shredder, Blender, Feeder, Silos, Separators, Dryers, Evaporators, Clarifier, Mixer, Extruder, Texturizer, Scraped Surface Heat Exchanger, Odorometers, Churner, Balance tank, Plate Heat Exchanger, Concentrator, Separator, Homogenizer, Pasteurizer, Timer, Vacuum Chamber, Muslin Cloth; Milk Sampling Bottle; Milk Stirrer; Gas with Burner; Knives, Spatulas, Packing Wrap Rolls, Measuring Cup and Spoons, Utensils, Digital Hygrometer	
		Food Safety Control System	• Identify, document and report problems such as rodents and pests to management • Conduct workplace checklist audit before and after work to ensure safety and hygiene • State the importancve of documenting and maintain raw material, packaging material, process and finished products for the credibility and effectiveness of the food safety control system.	FIC/N9001, v 1.0 PC10, PC11, PC12			7 Theory (2:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Ensuring Food Quality and Safety in Storage and Labeling Practices	• Analyze the quality of food products using criteria such as odor, appearance, taste, and best before date to determine their quality and prevent spoilage. • Apply safe food practices to store raw materials, finished products, and allergens separately to prevent cross-contamination. • Create and apply labeling systems for raw materials and finished products and store them in separate storage areas based on safe food practices. • Implement a stock rotation system based on FEFO/ FIFO principles to ensure the quality of the products and prevent food spoilage.	FIC/N9001, v 1.0 KU13, KU14, KU15, KU16			8 Theory (3:00) Practical (5:00)
Total							**Theory: 90:00** **Practical: 180:00**
OJT							**00:00**
Employability Skills (DGT/VSQ/N0101)							**30:00**
Total Duration							**Theory + Practical + OJT+ ES 300:00**

Annexure II

Assessment Criteria

CRITERIA FOR ASSESSMENT OF TRAINEES

Assessment Criteria for Butter and Ghee Processing Operator	
Job Role	**Butter and Ghee Processing Operator**
Qualification Pack	**FIC/Q2003 V3.0**
Sector Skill Council	**Food Processing**

S. No.	Guidelines for Assessment
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 The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
2	Assessment will be conducted for all compulsory NOS, as well as the selected elective NOS/set of NOS.
	OR
4	Assessment will be conducted for all compulsory NOS, as well as the selected optional NOS/set of NOS.
5	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
6	Individual assessment agencies will create unique evaulations for skill practical for every student at each examination/training center based on this criteria
7	To pass the Qualification Pack , every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
8	In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

Assessable Outcomes	Assessment Criteria for Outcomes	Marks Allocation	
		Theory	Practical
FIC/N2009: Prepare and maintain work area and process machineries for butter and ghee production	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
	PC4. check the working and performance of all machineries and tools used for the process such as filter, homogenizer, pasteurizer, separator, clarifier, separator, cutter, packaging machines, etc.	5	10
	PC5. clean the machineries and tools used with recommended sanitizers following the company specifications and standards	5	10
	PC6. place the necessary tools required for process	2	3
	PC7. attend to the minor repairs/ faults of all machines, if required	2.5	5
	PC8. select and set the machines and tools required for production	2.5	5
	NOS Total	**35**	**65**

FIC/N2010: Prepare for production of butter and ghee	PC1. read and understand the production order from the supervisor	2	3
	PC2. ensure working and performance of all machineries required for process	4	6
	PC3. report malfunctions of machine, if any, to the supervisor	2	3
	PC4. calculate the process time for effective utilization of machineries and manpower	2	3
	PC5. allot responsibilities/ work to the assistants and helpers	2	3
	PC6. refer process chart/ product flow chart/formulation chart for product(s) produced	**2**	**3**
	PC7. check the quality of raw materials by verifying the quality analysis report and assessing its physical parameters	5	5
	PC8. connect pipes between holding tanks and process equipment	5	10
	PC9. assemble fittings, valves, bowls, impeller shaft, strainers and other parts to equipment to prepare for production	5	10
	PC10. start machine and check the working condition and performance of the machine	2	8
	PC11. make minor adjustments and repairs (if required)	2	8
	PC12. keep the tools accessible to attend repairs/faults in case of breakdown	2	3
	NOS Total	**35**	**65**
FIC/N2011: Produce butter and ghee	PC1. sterilize the dairy 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 material through physical parameters such as impurities, colour, appearance, temperature etc and by verifying the quality report	1	1
	PC3. set and control metering devices or open valves to allow measured volume of milk from holding tank to pass through filter to remove sediment	1	2
	PC4. adjust controls to set speed of the separator, and open valves to allow milk to pass through the separator to separate cream (butter cream) from milk	2	3
	PC5. open valve of the of separator to allow the separated cream into the cream holding tank/bulk tank and stir the butter cream for uniform consistency	1	2
	PC6. check the quality of butter cream by testing the water and fat content	1	2
	PC7. set process parameters such as temperature, time of the pasteurizer, turn valves to admit steam, observe pressure and temperature gauge, and open valves to allow cream into pasteurizer to pasteurize cream	2	3
	PC8. collect the pasteurized butter cream in ageing tank for production of butter	0.5	1.5
	PC9. add bacterial culture to the butter cream in the ageing tank following the SOP	0.5	1.5
	PC10. allow the butter cream to stand in ageing tank for specified time for ageing/ fermentation of butter cream	0.5	0.5
	PC11. check the quality of butter cream, check the weight and start pump to move aged butter cream to churner	1	1
	PC12. adjust controls to regulate speed of the churner, press switches to start churner	1	2
	PC13. stop the churner in specified intervals, open the air vent to release the air from the churner, close the vent and start the churner, repeat this operation until butter (butter popcorn) is formed (in semi-automated units)	1	2
	PC14. stop the churner after butter popcorn is formed, observe separation of buttermilk from butter, and pump buttermilk from churner into container/ tank	1	2
	PC15. open churner and spray water (chlorinated) into butter to remove buttermilk residue	1	2

	PC16. weigh salt and add manually or prepare salt solution and pump it into the butter popcorn in the churner and close the churner (for production of salted butter)	0.5	1.5
	PC17. adjust controls and valves in the churner to maintain pressure in the churner, set the churner speed and start the churner to thicken the fat molecules	1	2
	PC18. press switches to start extruder of churner to extrude butter/salted butter into mill machine for mixing butter to achieve desired fineness	1	2
	PC19. sample butter and test for moisture, butterfat, salt content, texture, aroma, taste to detect any undesirable flavours, and compare color against colour chart	1	1
	PC20. transfer butter into the butter moulding and wrapping machine, load primary packaging material, set controls and start machine to shape measured quantity of butter into blocks and wrap in the primary packaging material	0.5	1.5
	PC21. load secondary packaging material in the packaging machine and set batch code, date code, packaging quantity etc and start the packaging machine to pack the wrapped butter and periodically check the weight of the packed product	1	2
	PC22. sample packed product and transfer to quality lab for analysis and conformance to standards	0.5	0.5
	PC23. transfer packed product into finished product storage area, and store product maintaining suitable storage conditions following the SOP	1	1
	PC24. check the quality of raw material (butter) through physical parameters	**1**	**1**
	PC25. set and control metering devices to transfer/extrude measured quantity of butter blocks/butter into the clarifying tank	1	2
	PC26. open valves to admit steam to heat clarifying tank to melt and remove moisture from butter	0.5	1.5
	PC27. pump melted butter to ghee boiler, set and maintain stirrer speed and temperature of the ghee boiler to heat melted butter to specified temperature for production of ghee	1.5	3.5
	PC28. position strainers across filling vents of the receiving tank	0.5	0.5
	PC29. turn valve to allow ghee to pass through strainers to remove scum	0.5	1.5
	PC30. open the valves to collect ghee in the receiving/holding tank	0.5	1.5
	PC31. adjust controls to set temperature of holding tank to cool ghee to specified temperature	0.5	1.5
	PC32. check the quality of ghee through physical parameters like appearance, colour, texture, aroma, taste etc	1	2
	PC33. load packaging material in the packaging machine, set batch code, date code, packaging quantity etc, start the packaging machine to pack measured quantity of ghee and periodically check the weight of the packed product	1	2
	PC34. sample packed product and transfer to quality lab for analysis and conformance to standards	1	1
	PC35. transfer packed product into finished product storage area, and store product maintaining suitable storage conditions following the sop	1	1
	PC36. report malfunction/discrepancies/concerns to department supervisor for immediate action	0.5	0.5
	PC37. turn valves or pump recommended sterilizing solution and rinse water through pipes for CIP of tanks and processing equipment following SOP	1	3
	PC38. clean the work area using recommended cleaning agents and sanitizers	0.5	1.5
	PC39. attend minor repairs/faults of all machines (if any)	0.5	1.5

	PC40. 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**
FIC/N2012: Complete documentation and record keeping related to butter and ghee production	PC1. document and maintain records of raw material processed such as name of raw material, tag details, supplier details, receiving date/ date ofmanufacture, expiry date, quality parameters, internal quality analysis report, 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
	PC5. document production details such as the products handled, production sequence, equipments and machinery details, efficiency and capacity utilization of equipment	6	4
	PC6. document process details such as type of raw material used, process parameters, 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 of observations (if any) or deviations related to process and production	3	2
	PC9. load the production and process details in ERP for future reference	3	2
	PC10. verify documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits	3	2
	PC11. document and maintain records of the types of finished products produced	2	1
	PC12. document finished products details such as batch number, time of packing, date of manufacture, date of expiry, other label details, primary and secondary and packaging materials for all finished products, storage conditions, etc. as per company standards	4	3
	PC13. maintain record of observations or deviations (if any) related to finished products	3	2
	PC14. load the finished product details in ERP for future reference	3	2
	PC15. verify the documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits	3	2
	NOS Total	**60**	**40**
FIC/N9001: Ensure food safety, hygiene and sanitation for processing food products	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
	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
	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**
DGT/VSQ/N0101: Employability Skills (30 Hours)	Introduction to Employability Skills	1	1
	PC1. understand the significance of employa-bility skills in meeting the job requirements	-	-
	Constitutional values – Citizenship	1	1
	PC2. identify constitutional values, civic rights, duties, personal values and ethics and envi-ronmentally 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 cultur-al awareness, emotional awareness, continu-ous learning mindset etc.	-	-
	Basic English Skills	2	3
	PC4. speak with others using some basic Eng-lish 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 har-assment	-	-
	Financial and Legal Literacy	3	4
	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	4	6

	PC12. operate digital devices and use its fea-tures and applications securely and safely	-	-
	PC13. use internet and social media platforms securely and safely	-	-
	Entrepreneurship	3	5
	PC14. identify and assess opportunities for po-tential 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 op-portunities as per requirement	-	-
	NOS Total	**20**	**30**

Annexure III

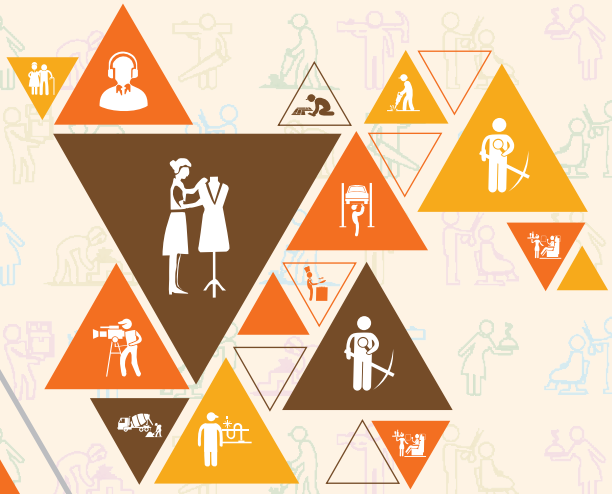
List of QR Codes Used in PHB

Module No.	Unit No.	Topic Name	Page No in PHB	Link for QR Code (s)	QR code (s)
1. Introduction	UNIT 1.2: Introduction to the Food Processing Industry	1.2.1 Food Processing	11	https://www.youtube.com/watch?v=J-2EiMVNtpM&t=14s	Overview of Food Processing Industry
	UNIT 1.3: Introduction to the Dairy Industry in India	1.3.1 Dairy Industry in India	11	https://www.youtube.com/watch?v=4XuvGYvKGnE	Overview of dairy industry
		1.3.2 Units of a Dairy Processing Plant	11	https://www.youtube.com/watch?v=t2LerU8-aXY	Introduction to Butter and Ghee
	UNIT 1.4: Attributes of a Butter and Ghee Processing Operator	1.4.1 Roles and Respon-sibilities	11	https://www.youtube.com/watch?v=GU5nObbJCxc	Orientation video
		1.4.1 Roles and Respon-sibilities	11	https://www.youtube.com/watch?v=zc7-SstpWjc	Roles and Responsibilities

Module No.	Unit No.	Topic Name	Page No in PHB	Link for QR Code (s)	QR code (s)
2. Food Safety, Hygiene and Sani-ta-tion for Pro-cessing Food Prod-ucts	UNIT 2.3: Good Man-ufactur-ing Practices (GMP)	2.3.1 Good Manufactur-ing Practices (GMP)	29	https://www.youtube.com/watch?v=RS4A-uczS6E&t=32s Mod. 2	GMP,GHP & FSMS
	UNIT 2.1: Sanitation and Hy-giene	2.1.1 Person-al Sanitation	29	https://www.youtube.com/watch?v=iq8jOuZ5k6k	Pest Control
		2.1.1 Person-al Sanitation	29	https://www.youtube.com/watch?v=daNjRoP_I0c&t=31s	Personnel hygiene and employee facilities
	UNIT 2.3: Good Man-ufacturing Practices (GMP)	2.3.1 Good Manufactur-ing Practices (GMP)	29	https://www.youtube.com/watch?v=gNEx-8P9UqPA&t=106s	Personnel Hy-giene and person-al behaviour
		2.1.1 Person-al Sanitation	51	https://www.youtube.com/watch?v=1y_bN5Kt40o	Equipment's used in Butter and Ghee

Module No.	Unit No.	Topic Name	Page No in PHB	Link for QR Code (s)	QR code (s)
3. Prepare and Maintain Work Area and Process Machiner-ies for Butter and Ghee Produc-tion	UNIT 3.1: Usage and Mainte-nance of Equipment and Ma-chin-eries	3.1.1 Equip-ment Used in Dairy Pro-cess-ing	51	https://www.youtube.com/watch?v=QWpU7DAf-Ncs&t=38s	Cleaning and Sanitation
	UNIT 3.3: Cleaning Pro-cesses	3.3.5 Process of Cleaning the Work Ar-ea	51	https://www.youtube.com/watch?v=tRAnusofqJ8&t=52s	Maintenance
5. Pro-duce But-ter and Ghee	UNIT 5.2: In-troduction to Fat Rich Dairy Prod-ucts	5.2.1 Fat-Rich Dairy Prod-ucts	88	https://www.youtube.com/watch?v=1aGi2zZDMpU	Butter Manufac-turing
	UNIT 5.5: Packaging and Storage of Butter	5.5.1 Pack-ag-ing and Stor-age of Butter	88	https://www.youtube.com/watch?v=Kz6Rkoogb7A	Packaging and Storage of Butter and Ghee
	UNIT 5.6: Production of Ghee	5.6.1 Intro-duc-tion to Ghee	88	https://www.youtube.com/watch?v=5o6xyViYzKU	Ghee processing
	UNIT 5.7: Packaging and Storage of Ghee	5.7.3 Tests Done for Ghee	88	https://www.youtube.com/watch?v=xtZxtUHw2WE	Testing Ghee Adulteration with Starch

Module No.	Unit No.	Topic Name	Page No in PHB	Link for QR Code (s)	QR code (s)
		5.7.3 Tests Done for Ghee	88	https://www.youtube.com/watch?v=SNbE7bTpbQU	Testing Butter Adulteration with Starch
		5.7.3 Tests Done for Ghee	88	https://www.youtube.com/watch?v=PEhHesYE3_4	Testing Butter and Ghee Adultera-tion with coal tar
6. Com-plete Docu-men-tation and Record Keeping Related to Butter and Ghee Pro-duc-tion	UNIT 6.1: Documen-ta-tion and Record Keep-ing	6.1.1 Need for Documen-ta-tion	94	https://www.youtube.com/watch?v=kcpGlHBpphA&t=71s	Audit, Documen-tation and Record keeping
Employability Skills (30 Hrs)				https://www.skillindiadigital.gov.in/content/list	



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GOVERNMENT OF INDIA
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& ENTREPRENEURSHIP

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