



# Facilitator Guide



Sector  
Food Processing

Sub-Sector  
Bread and Bakery

Occupation  
Baking Technician/Operative

Reference ID: FIC/Q5005, Version 3.0  
NSQF level: 4

# Baking Technician/ Operative





**Shri Narendra Modi**  
Prime Minister of India

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





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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 Baking Technician/Operative 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/N5017: Prepare and maintain work area and machineries for baking products in the oven
- FIC/N5018: Prepare for baking products in the oven
- FIC/N5019: Bake bakery products in the oven
- FIC/N5020: Complete documentation and record keeping related to baking products in the oven
- 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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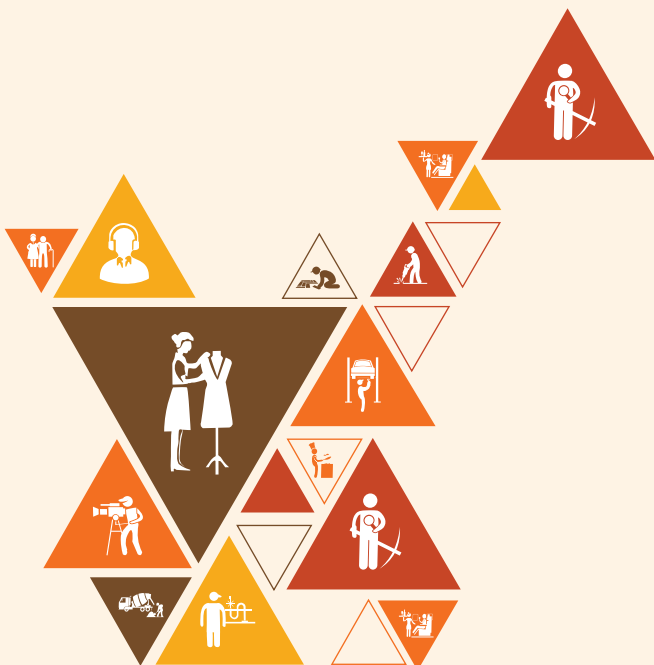


# 1. Introduction

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



## 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. **Time Duration:** 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. Time Duration:** 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. **Time Duration:** 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:** “Role-Play: A Day in the Life of a Baking Technician / Operative”
2. **Objective:** To simulate the real-life experience of working as a baking technician / operative and identify the roles and responsibilities involved.
3. **Resources:** Baking ingredients, equipment, and machines; packaging materials
4. **Time Duration:** 30-45 minutes
5. **Instructions:**
  - Divide the participants into small groups of 3-4 people.
  - Assign each group a scenario that describes a specific baking task or responsibility.
  - Each group should act out the scenario, taking turns to play the role of the baking technician / operative.
  - After each scenario, discuss with the group the roles and responsibilities involved and how they would approach the task in a real-life situation.
  - Repeat the activity with different scenarios until all the important roles and responsibilities have been covered.
6. **Outcome:** Participants will have a better understanding of the roles and responsibilities of a baking technician / operative and how they can apply them in a real-life setting.

## Notes for Facilitation

- Create a positive and inclusive learning environment where participants feel comfortable asking questions and sharing their experiences.
- Encourage participation and engagement by using open-ended questions and interactive activities.
- Provide clear and concise instructions and feedback throughout the session.
- Emphasize the importance of accuracy and attention to detail in mixing ingredients and operating baking equipment.
- Discuss the importance of maintaining a clean and safe work environment to prevent contamination and injury.
- Highlight the role of teamwork and communication in coordinating tasks and ensuring product quality.

## Answers to Exercises for PHB

1. Unit 1.1: Overview of the Food Processing Industry  
Topic: 1.1.1 Food Processing
2. Unit 1.1: Overview of the Food Processing Industry  
Topic: 1.1.1 Food Processing
3. Unit 1.1: Overview of the Food Processing Industry  
Topic: 1.1.2 Journey of Food from Harvest to Consumer
4. d. All of the above
5. No
6. UNIT 1.3: Roles and Responsibilities of Baking Technician /Operative  
Topic: 1.3.1 Roles and Responsibilities



## Key Learning Outcomes



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

1. State the standard operating procedures in the baking industry
2. State the personal hygiene and sanitation guidelines
3. State the food safety hygiene standards to follow in a work environment
4. Identify the different equipment used in the baking process
5. State the materials and equipment used in cleaning and maintenance of the work area and machineries
6. State the cleaning processes used to clean the work area and process machineries



## Unit 2.1: Equipment Used in bakery

### Unit Objectives

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

1. State factors to be considered while selecting the equipment
2. Classify bakery equipment
3. Select right kind of equipment for production

### Resources to be Used

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

### Say

- Good morning trainees today, we will be discussing the different types of equipment used in bakery production.
- By the end of this session, you will have a better understanding of the essential equipment used in the process of baking.

### Do

- Begin the session by showing pictures or physical examples of bakery equipment and ask the trainees to identify each piece and its function.
- Use a whiteboard to draw or list the different types of equipment and their functions.
- Provide handouts that summarize the key equipment and their functions.
- Discuss how each piece of equipment plays a role in the baking process and how they work together to create baked goods.

### Ask

- What are some of the essential pieces of equipment used in baking?
- How does each piece of equipment contribute to the baking process?

## Elaborate

- **Bakery Equipment:** A range of equipment is used in a bakery, including ovens, mixers, scales, sheeters, and moulders.
- **Equipment Used in the Process of Baking:** The oven is the most important piece of equipment in the bakery. Other equipment includes proofing cabinets, dough dividers, dough rounders, dough moulders, and dough sheeters.

## Demonstrate

Demonstrate how to use each piece of equipment and explain its function.

## Activity

1. **Activity Name:** Equipment Identification
2. **Objective:** To reinforce the trainee's understanding of the different bakery equipment and their functions.
3. **Resources:** Pictures of bakery equipment, handouts, and pens
4. **Time Duration:** 20-25 minutes
5. **Instructions:**
  - Divide the trainees into small groups.
  - Provide each group with a set of pictures of bakery equipment.
  - Ask each group to identify each piece of equipment and its function and write it down on the handout.
  - After completing the activity, ask each group to present their findings to the class.
6. **Outcome:** Trainees will have a better understanding of the different bakery equipment and their functions.

## Notes for Facilitation

- Make sure to provide ample time for questions and discussion.
- Emphasize the importance of using equipment safely and correctly.
- Remind the trainees that each piece of equipment plays a crucial role in the baking process and can affect the quality of the final product.

## Unit 2.2: Cleaning and Maintenance

### 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. Explain the importance of cleaning and sanitation in baking industry

### Resources to be Used

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

### Say

- Good morning trainees today, we will be discussing the important topics of cleaning and maintenance in a food processing environment.
- By the end of this session, you will understand the importance of proper cleaning and sanitization practices and the types of cleaners and sanitizing agents commonly used.

### Do

- Begin the session by introducing the topic and the objectives of the session.
- Present the slides on cleaning and maintenance, discussing the different types of cleaners and sanitizing agents and their uses.
- Demonstrate the proper cleaning procedures and techniques using the cleaning equipment and sample agents.
- Provide handouts on the cleaning procedures and guidelines for the participants to refer to.
- Conclude the session by emphasizing the importance of proper cleaning and maintenance in the food processing industry.

### Ask

- What are the key differences between cleaning and sanitization?
- Can you provide examples of different types of cleaners and sanitizing agents?

## Elaborate

- **Cleaning and Sanitization:** Cleaning is the process of removing visible dirt, debris, and residues from surfaces, while sanitization refers to reducing the number of microorganisms to a safe level. Both are essential for maintaining a hygienic environment in food processing.
- **Cleaners and Sanitizing Agents:** Common cleaners include detergents, degreasers, and solvents, while sanitizing agents include chlorine-based compounds, iodine-based compounds, and quaternary ammonium compounds.

## Demonstrate

Demonstrate proper cleaning and sanitization techniques, including the correct use of cleaning agents and sanitizers. Show how to properly clean equipment and surfaces using appropriate cleaning tools.

## Activity

1. **Activity Name:** Cleaning and Sanitization Practice
2. **Objective:** To practice proper cleaning and sanitization techniques in a food processing environment.
3. **Resources:** Cleaning equipment and supplies
4. **Time Duration:** 30-40 minutes
5. **Instructions:**
  - Divide the trainees into pairs or small groups.
  - Provide them with cleaning equipment and supplies (if available).
  - Assign each group a specific area or equipment to clean and sanitize.
  - Instruct the groups to follow proper cleaning and sanitization procedures, ensuring they use the appropriate cleaning agents and sanitizers.
  - Encourage them to pay attention to details and discuss any challenges or questions that arise.
  - After completing the activity, have each group present their cleaning process and discuss the effectiveness of their methods.
6. **Outcome:** Trainees will gain hands-on experience in applying proper cleaning and sanitization techniques in a food processing environment.

## Notes for Facilitation

- Emphasize the importance of following standard operating procedures for cleaning and sanitization.
- Encourage trainees to ask questions and actively participate in discussions.
- Ensure proper handling and disposal of cleaning agents and sanitizers.
- Highlight the importance of personal protective equipment (PPE) when working with cleaning agents.
- Discuss the potential consequences of inadequate cleaning and sanitization on product quality, food safety, and regulatory compliance.
- 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: 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 related to Cleaning Processes.

### Say

- Welcome to the class on Cleaning Processes. 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 is your understanding of GMP?
- What are the regulatory requirements for GMP?
- How can you implement GMP in your workplace?

## 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. **Time Duration:** 30 minutes
5. **Steps involved:**
  - 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. b. Use a steam cleaner to clean the equipment and work top of grease and then use a steam vacuum cleaner to clean the floor of oil and grime
2. c. Scrape the top and sides with metal scraper
3. d. 1, 2 and 3
4. d. Humidifier





## Key Learning Outcomes



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

1. Discuss the elements of preparing for production of baked products
2. Show how to clean the work area and baking equipment to prepare for production.
3. Describe the maintenance activities that are performed as per work requirements.
4. List the tools and equipment required for rectifying faults in the process machinery.

## Unit 3.1: Production Order

### Unit Objectives

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

1. Plan production in terms of resources including material, time and manpower for achieving objectives
2. Plan production tasks and sequence of activities for efficient production

### Resources to be Used

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

### Say

- Good morning participants today, we will discuss the importance of production order and the activities that follow post-production order.
- This class is designed to help you understand the production planning process and how production order plays an important role in it.
- By the end of the class, you will have a clear understanding of how to manage production orders and the activities that follow post-production order.

### Do

- Begin by introducing the importance of production planning and how it is critical for the success of any production process.
- Discuss the concept of production order and its significance in the production planning process.
- Explain the different types of production orders and how to manage them effectively.
- Describe the post-production order activities that follow production order, such as inspection, quality control, and packaging.

### Ask

- What is production planning, and why is it important?
- How does production order help in managing the production process effectively?

## Elaborate

- Production planning involves creating a production schedule and determining the resources required for the production process to ensure that the final product is produced on time and within budget.
- A production order is a document that details the materials and resources required for a specific production run.
- Post-production order activities include quality control, inspection, and packaging, which are necessary to ensure that the final product meets the required quality standards.

## Demonstrate

Demonstrate the use of a production order and explain how it is created and managed.

## Activity

1. **Activity Name:** Production Planning Simulation
2. **Objective:** To help trainees understand the production planning process and the importance of production order in it.
3. **Resources:** Whiteboard and markers, handouts on production planning and production orders, simulated production scenarios.
4. **Time Duration:** 30 minutes
5. **Steps involved:**
  - Divide the trainees into small groups.
  - Provide each group with a simulated production scenario.
  - Ask the groups to create a production schedule and a production order based on the scenario provided.
  - Once the production schedule and order have been created, ask the groups to explain their process and the reasoning behind their decisions.
6. **Outcome:** Trainees will have a better understanding of the production planning process and how production order fits into it.

## Notes for Facilitation

- Encourage active participation and engagement from all trainees throughout the class.
- Use real-life examples and scenarios to make the training more relevant and engaging.
- Emphasize the importance of accurate record-keeping and communication in the production planning process.
- Provide guidance on how to manage unexpected events or changes in the production process effectively.
- Highlight the importance of post-production order activities in ensuring the quality of the final product.

## Unit 3.2: Production Sequence

### Unit Objectives

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

1. Explain production sequence
2. Calculate batch size
3. Calculate requirement for raw materials

### Resources to be Used

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

### Say

- Good morning trainees today, we will be discussing the important aspects of production planning in a bakery.
- We will cover the topics of Production Sequence, Batch, Types of Production Process, Raw Material and Manpower Requirement, Packaging Material Calculation, Performance of Equipment, and Process Time.
- By the end of this session, you should have a good understanding of how to plan and sequence production to ensure efficiency and effectiveness.

### Do

- Introduce the topic of Production Sequence and ask participants what they understand by it.
- Use presentation slides to explain the different aspects of production planning.
- Use sample production plan and sequence chart to demonstrate how to sequence production and allocate resources.
- Conduct an activity to practice calculating the raw material and manpower requirement based on the given production plan.
- Discuss the importance of packaging material calculation and performance of equipment.
- Summarize the key takeaways and answer any questions.

### Ask

- What is Production Sequence and why is it important?
- What are the different types of Production Process used in a bakery?

## Elaborate

- Production Sequence refers to the order in which the production process is carried out. It is important because it helps in planning and allocating resources effectively.
- Batch (or lot) refers to a quantity of product that is processed at one time. It is important to determine the batch size to optimize the use of resources.
- There are different types of Production Process used in a bakery such as batch process, continuous process, and assembly line process.
- Raw Material and Manpower Requirement are critical factors that need to be considered while planning production. Accurate calculation of these factors can help in reducing wastage and optimizing the use of resources.
- Packaging Material Calculation and Performance of Equipment are crucial aspects that impact the efficiency of the production process.
- Process Time refers to the time taken for completing a particular step in the production process.

## Demonstrate

Demonstrate how to calculate the Raw Material and Manpower Requirement for a production plan.

## Activity

1. **Activity Name:** Raw Material and Manpower Requirement Calculation
2. **Objective:** To practice calculating the Raw Material and Manpower Requirement based on the given production plan
3. **Resources:** Worksheets, Calculator
4. **Time Duration:** 20 minutes
5. **Instructions:**
  - Divide participants into groups of 4.
  - Provide each group with a worksheet and calculator.
  - Give them a production plan with the required quantity of each item to be produced.
  - Ask them to calculate the Raw Material and Manpower Requirement for the given production plan.
  - Set a time limit of 15 minutes for the activity.
  - Once the time is up, ask each group to present their calculation.
  - The group with the most correct answers wins.
6. **Outcome:** Participants will have a better understanding of how to calculate the Raw Material and Manpower Requirement for a production plan.

## Notes for Facilitation

- Encourage active participation and engagement from all participants.
- Use real-life examples and scenarios to make the session more relatable.
- Emphasize the importance of accurate calculation and planning for efficient production.
- Monitor the progress of the activity and provide guidance if required.
- Address any questions or concerns raised by participants during the session.

## Answers to Exercises for PHB

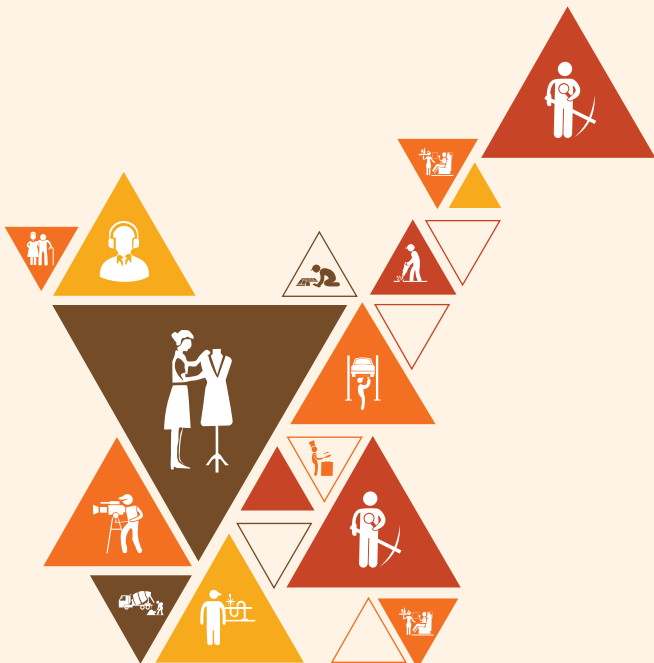
1. UNIT 3.1: Production Order  
Topic: Production and Planning
2. UNIT 3.2: Production Sequence  
Topic: 3.2.1 Production Sequence
3. UNIT 3.2: Production Sequence  
Topic: 3.2.2 Batch (or lot)
4. UNIT 3.2: Production Sequence  
Topic: 3.2.3 Types of Production Process in a Bakery
5. UNIT 3.2: Production Sequence  
Topic: 3.2.4 Raw Material and Manpower Requirement
6. UNIT 3.2: Production Sequence  
Topic: 3.2.5 Packaging Material Calculation
7. UNIT 3.2: Production Sequence  
Topic: 3.2.6 Performance of Equipment
8. UNIT 3.2: Production Sequence  
Topic: 3.2.7 Process Time in Bakery





## 4. Bake Bakery Products in the Oven

- Unit 4.1 - Baker's Math
- Unit 4.2 - Overview of Baking Ingredients
- Unit 4.3 - Production Processes
- Unit 4.4 - Proofing
- Unit 4.5 - Bread Making
- Unit 4.6 - Quality Check of Baked Products
- Unit 4.7 - Packaging of Baked Products
- Unit 4.8 - Packaging of Baked Products
- Unit 4.9 - Post-Production Cleaning and Maintenance



## Key Learning Outcomes



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

1. Plan the production sequence to maximise capacity utilization of resources, manpower, and machineries
2. Calculate the batch size based on the production schedule and machine capacity
3. Prioritize urgent orders based on the production schedule
4. Check the conformance of baking ingredients quality to company standards
5. State the units of measurement used in the food processing industry
6. Identify the baking ingredients required for production as per production schedule and formation
7. Organize quality baking ingredients as per production process and company standards
8. Identify the various fuels used in the baking industry
9. State the various production processes followed in the baking industry
10. State the different mixing methods used for baking
11. State the process of proofing
12. Demonstrate the process of proofing in the baking industry
13. Demonstrate the process of baking products in an oven
14. Identify if the final product meets the quality parameters
15. State the process of cooling baked products
16. State the process of packaging baked products
17. State the method of storing baking ingredients
18. State the method of storing finished products
19. Demonstrate the process of cleaning the work area and machineries after production

## Unit 4.1: Baker's Math

### Unit Objectives

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

1. State the units of measurement used in the food processing industry

### Resources to be Used

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

### Say

- Good morning trainees today, we will be learning about the formulas and calculations that bakers use in their daily work.
- Baker's math is essential for ensuring that baked goods are consistent and of high quality. By the end of this session, you will have a solid understanding of the formulas and calculations involved in baking.

### Do

- Introduce the topic and give an overview of what will be covered in the session.
- Explain each formula in detail and provide examples of how to use them.
- Provide opportunities for participants to practice using the formulas with handouts and exercises.
- Address any questions or concerns that arise during the session.

### Ask

- What is the importance of using baker's math in baking?
- What are some common formulas used in baker's math?

### Elaborate

Baker's math is the system of calculations used in baking to ensure that the ingredients are measured accurately and the final product is consistent and of high quality. It involves formulas for calculating the amount of ingredients needed, the dough yield, and the baker's percentage.

## Demonstrate

Demonstrate how to use the formulas for calculating ingredient amounts, dough yield, and baker's percentage.

## Activity

1. **Activity Name:** Formula Practice
2. **Objective:** To provide hands-on practice in using the formulas for baker's math.
3. **Resources:** Handouts with formulas and practice problems, calculator
4. **Time Duration:** 20-30 minutes
5. **Steps involved:**
  - Distribute handouts with formulas and practice problems to participants.
  - Allow time for participants to work through the problems using calculators.
  - Review the answers as a group and provide feedback as necessary.
  - Ask them to wait for 10-15 minutes and take the temperature reading again.
  - Discuss the changes in temperature and explain how the experiment demonstrates the basic principles of refrigeration.
6. **Outcome:** Participants will gain practical experience in using the formulas for baker's math.

## Notes for Facilitation

- Encourage participants to ask questions and seek clarification throughout the session.
- Provide opportunities for participants to work collaboratively on exercises and activities.
- Remind participants of the importance of accuracy in measuring ingredients and calculating quantities.
- Emphasize the practical applications of baker's math in ensuring consistent quality in baked goods.
- Allow time for discussion and reflection at the end of the session to reinforce learning.

## Unit 4.2: Overview of Baking Ingredients

### Unit Objectives

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

1. Identify the baking ingredients required for production as per production schedule and formation
2. Organize quality baking ingredients as per production process and company standards

### Resources to be Used

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

### Say

- Good morning trainees in this session, we will discuss the various ingredients used in the baking industry and the quality parameters associated with them.
- Baking is a science, and every ingredient used in baking plays a crucial role in the final product. So, it's essential to have a basic understanding of these ingredients to produce high-quality bakery products.
- Throughout the session, feel free to ask any questions or share your thoughts and experiences related to the topic.

### Do

- Introduce the session's objectives and give an overview of the topics that will be covered.
- Present the slides on "Ingredients Used in the Baking Industry" and explain each ingredient's role in baking.
- Discuss the quality parameters of baking ingredients and how to ensure their quality and freshness.
- Give out the handouts for note-taking and encourage the trainees to take notes.
- Provide samples of baking ingredients and demonstrate how to use them correctly.
- Conduct a quality control activity where the trainees will evaluate the baking ingredients' quality using the provided checklist.
- Summarize the key points covered in the session and encourage the trainees to ask any remaining questions.

### Ask

- What are some common ingredients used in baking, and what role do they play in the final product?
- How do you ensure the quality and freshness of the baking ingredients you use in your bakery?

## Demonstrate

- Show how to measure the right amount of ingredients and how to mix them in the right proportion to achieve the desired result.
- Demonstrate how to check the quality of baking ingredients.

## Elaborate

- Ingredients Used in the Baking Industry
  - Quality Parameters

## Activity

1. **Activity Name:** Ingredient Matching Game
2. **Objective:** To reinforce understanding of the different types of baking ingredients and their roles in the baking process.
3. **Resources:** Cards with ingredient names and descriptions
4. **Time Duration:** 20-30 minutes
5. **Instructions:**
  - Divide the participants into 4 groups.
  - Give each group a set of cards with the names of different baking ingredients and their descriptions.
  - Instruct the groups to match the ingredient name with its description.
  - The first group to match all the cards correctly wins.
  - Debrief the activity by discussing any challenges the participants faced and the importance of understanding baking ingredients.
6. **Outcome:** Participants will have a better understanding of the different types of baking ingredients and their roles in the baking process.

## Notes for Facilitation

- Encourage trainees to ask questions and share their experiences related to the topic.
- Ensure that everyone has understood the topics covered before moving on to the next one.
- Emphasize the importance of using high-quality ingredients to produce high-quality bakery products.
- Provide feedback and guidance during the quality control activity.
- Wrap up the session by summarizing the key points covered and encouraging trainees to apply the knowledge gained in their bakery.

## Unit 4.3: Production Processes

### Unit Objectives

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

1. State the various production processes followed in the baking industry
2. Enlist different control points in baking industry

### Resources to be Used

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

### Say

Good morning trainees today we will be discussing the production processes involved in baking, specifically the purpose of baking, control points for baking, mixing methods used in the baking industry, purpose of mixing, control points for mixing, and types of mixing.

### Do

- Use the presentation slides to provide an overview of the purpose of baking and control points for baking.
- Use the presentation slides to explain the different mixing methods used in the baking industry, their purposes, and control points.
- Provide a handout on the mixing methods used in the baking industry and ask the participants to review it.
- Demonstrate one or more mixing methods to show the participants how they are done.
- Conduct the activity listed below to allow participants to practice one of the mixing methods.
- Summarize the key points covered in the session.

### Ask

- What is your favorite baked good, and what do you think is involved in making it?
- Have you ever had a baking disaster? What do you think went wrong?

### Elaborate

- Purpose of Baking: Baking is the process of using heat to cook food and change its texture and taste. It is used to create a wide variety of baked goods, including bread, cakes, cookies, and pastries.

- **Control Points for Baking:** These are key factors that impact the outcome of the baked good, such as temperature, time, and moisture content. By controlling these factors, bakers can ensure consistent quality and texture in their baked goods.
- **Mixing Methods:** There are several mixing methods used in the baking industry, including the creaming method, muffin method, biscuit method, and sponge method. Each method has its own purpose and control points, which can affect the texture and structure of the final product.

## Demonstrate

Demonstrate one or more mixing methods to show the participants how they are done, such as the creaming method or the muffin method.

## Activity

1. **Activity Name:** Mixing Method Practice
2. **Objective:** To practice one of the mixing methods covered in the session.
3. **Resources:** Mixing bowls, spatulas, measuring cups and spoons, and ingredients (depending on the mixing method chosen).
4. **Time Duration:** 30 minutes
5. **Steps involved:**
  - Divide the participants into 4 groups.
  - Ask each group to choose a mixing method they would like to practice.
  - Provide each group with the necessary ingredients and tools to practice the chosen mixing method.
  - Ask them to follow the instructions for the mixing method and mix the ingredients until they reach the desired consistency.
  - Once they have finished mixing, ask them to compare the texture and consistency of their mixture with the desired outcome.
  - Allow time for participants to ask questions and discuss their experience with the mixing method.
6. **Outcome:** Participants will gain hands-on experience practicing one of the mixing methods covered in the session, allowing them to better understand the purpose and control points of each method.

## Notes for Facilitation

- Encourage participants to share their own experiences and insights related to baking and mixing methods.
- Provide guidance on proper mixing techniques and emphasize the importance of following recipe instructions.
- Use visual aids or diagrams to help illustrate the control points and different mixing techniques.
- Highlight the significance of adjusting mixing methods based on the desired outcome and type of baked goods.
- Emphasize the importance of maintaining hygiene and cleanliness during the production processes.



## Unit 4.4: Proofing

### Unit Objectives

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

1. State the process of proofing

### Resources to be Used

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

### Say

- Good morning trainees in this class, we will learn about the process of proofing and baking and its importance in producing quality baked products.
- By the end of this session, you will understand the purpose of proofing, the control points for proofing and baking, and the process of proofing and baking in the oven.

### Do

- Start the session by introducing yourself and the topics that will be covered in the session.
- Use the presentation slides to discuss the topics in an interactive manner. Encourage participants to ask questions and share their experiences.
- Show a video or demonstration of the proofing and baking process to help participants understand the concepts better.
- Use the handout to summarize the main points covered in the session and distributes it to the participants.
- End the session by summarizing the key takeaways and inviting questions from the participants.

### Ask

- What are some common problems that can arise during the proofing and baking process?
- How can you identify if a product has been properly proofed before baking?

## Elaborate

- What is Proofing?
  - Purpose of Proofing
  - Control Points for Proofing
- Process of Proofing
- Process of Baking Oven Baking

## Demonstrate

Show a video or demonstration of the proofing and baking process to help participants understand the concepts better.

## Activity

1. **Activity Name:** Baking Challenge
2. **Objective:** To test participants' understanding of the proofing and baking process and their ability to produce quality baked products.
3. **Resources:** Ingredients and baking equipment, sample recipes, judging criteria.
4. **Time Duration:** 2 hours
5. **Instructions:**
  - Divide participants into 4 groups.
  - Provide them with the ingredients and equipment needed to bake a particular recipe.
  - Give the groups a set amount of time to mix, proof, and bake their products.
  - After the products are baked, evaluate them based on taste, texture, appearance, and other criteria.
  - Declare the winning group and discuss the factors that contributed to their success.
6. **Outcome:** Participants will have a hands-on experience of the proofing and baking process, and will have the opportunity to test their understanding of the concepts covered in the session.

## Notes for Facilitation

- Encourage participants to ask questions and share their experiences throughout the session.
- Use examples from real-life baking scenarios to illustrate the concepts covered in the session.
- Emphasize the importance of precise control of time, temperature, and humidity in producing quality baked products.
- Provide participants with practical tips for achieving optimal proofing and baking results.
- Allow sufficient time for the activity and make sure to provide all necessary ingredients and equipment.

## Unit 4.5: Bread Making

### Unit Objectives

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

1. Explain the bread making process
2. Use different methods to make breads
3. Identify bread faults and their causes
4. Use given recipes to produce common breads

### Resources to be Used

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

### Say

- Good morning trainees in this session, we will explore the art and science of bread making, including different types of bread, the bread making process, and common bread faults and their causes.
- By the end of this session, you will have a better understanding of the bread making process, be familiar with various types of bread, and be able to identify and troubleshoot common bread faults.

### Do

- Use the presentation slides to guide the discussion and share information about different types of bread, the bread making process, and common bread faults and causes.
- Show samples of different types of bread to familiarize participants with their characteristics and variations.
- Conduct a bread making demonstration, following a selected recipe, to provide a hands-on experience of the bread making process.
- Distribute the handout summarizing the key points covered in the session.
- Allow time for questions and discussions throughout the session.
- Conclude the session by summarizing the main takeaways and encouraging participants to explore bread making further.

### Ask

- What is your favorite type of bread, and why?
- Have you ever encountered any issues or faults while making bread?

## Elaborate

- Bread making involves the combination of flour, water, yeast, and other ingredients to create dough, followed by fermentation, shaping, and baking.
- Different types of bread can vary in ingredients, techniques, and characteristics, such as texture, crust, and flavor.
- The bread making process includes mixing and kneading the dough, allowing it to rise through fermentation, shaping the dough into desired forms, and baking to achieve the desired texture and taste.
- Bread faults can occur due to factors such as improper fermentation, incorrect shaping, over- or under-proofing, or issues with the baking process.

## Demonstrate

Conduct a bread making demonstration using a selected recipe to showcase the different stages of the bread making process, including mixing, kneading, fermentation, shaping, and baking.

## Activity

1. **Activity Name:** Bread Tasting and Evaluation
2. **Objective:** To engage participants in evaluating different types of bread and identifying their characteristics.
3. **Resources:** Samples of various types of bread, evaluation sheets or scorecards.
4. **Time Duration:** 30 minutes
5. **Instructions:**
  - Provide participants with a variety of bread samples, including different types and flavors.
  - Ask participants to taste the bread samples and evaluate them based on criteria such as texture, crust, flavor, and overall appeal.
  - Provide evaluation sheets or scorecards for participants to record their observations and ratings for each bread sample.
  - After the tasting, facilitate a group discussion to compare and discuss the different characteristics of the bread samples.
  - Summarize the findings and encourage participants to reflect on how the bread making process and ingredients contribute to the characteristics of each type of bread.
6. **Outcome:** Participants will develop a better understanding of the sensory aspects of bread and be able to evaluate and describe different types of bread based on their characteristics.

## Activity

1. **Activity Name:** Making Bread from Scratch
2. **Objective:** To allow participants to practice the bread making process and create their own loaf of bread.
3. **Resources:** Ingredients for making bread, bread making equipment, handouts on bread making process

**4. Time Duration:** 2-3 hours

**5. Instructions:**

- Provide each participant with a mixing bowl, measuring cups and spoons, and a dough hook.
- Instruct participants to measure out the ingredients and mix them together in the bowl.
- Have participants knead the dough for 10-15 minutes until it becomes smooth and elastic.
- Instruct participants to allow the dough to proof for 1-2 hours in a warm place.
- Preheat the oven to 375°F.
- Once the dough has proofed, have participants shape it into a loaf and place it in a bread pan.
- Bake the bread in the oven for 30-40 minutes or until the crust is golden brown.

**6. Outcome:** Participants will have created their own loaf of bread and gained hands-on experience with the bread making process.

## Notes for Facilitation

- Encourage participants to ask questions throughout the session.
- Provide additional resources on bread making for participants to take home.
- Be mindful of participants with allergies or dietary restrictions and provide alternatives when possible.
- Emphasize the importance of precision when measuring ingredients in bread making.
- Provide tips on how to store and freeze bread for later use.

## Unit 4.6: Quality Check of Baked Products

### Unit Objectives

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

1. Identify if the final product meets the quality parameters

### Resources to be Used

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

### Say

- Good morning trainees in this session, we will learn about the parameters to check the quality of baked products and how to properly cool them down.
- Baked products that are not properly checked and cooled can affect their overall quality, taste, and appearance.

### Do

- Begin by introducing the topic and its importance.
- Discuss the different parameters to check the quality of baked products, including texture, appearance, aroma, taste, and consistency. Also, discuss common faults and their remedies.
- Talk about the importance of cooling baked products to prevent them from becoming soggy or losing their shape.
- Discuss the different methods of cooling and when to use them.

### Ask

- What are some common faults that can occur in baked products?
- What are the different methods for cooling baked products?

### Elaborate

Parameters to Check the Baked Product:

- Texture: soft, moist, tender, and crumbly
- Appearance: even color, smooth surface, and appropriate size
- Aroma: pleasant and appetizing smell

- Taste: balanced and not overly sweet or salty
- Consistency: evenly distributed ingredients and no air pockets
- Faults and Remedies: undercooked (continue baking), overcooked (reduce baking time), collapsed (check leavening agent), burnt (check oven temperature), tough (overmixed or overworked)

Cooling of Baked Products:

- Cooling baked products is important to prevent them from becoming soggy and losing their shape.
- The different methods of cooling include air cooling, surface cooling, and forced air cooling.
- Use a cooling rack or tray to cool baked products.

## Demonstrate

Demonstrate the process of checking the quality of baked products and proper cooling methods using samples.

## Activity

1. **Activity Name:** Quality Check and Cooling
2. **Objective:** To enable participants to practice the quality check and cooling methods of baked products.
3. **Resources:** Samples of baked products, checklist for quality check, cooling rack or trays
4. **Time Duration:** 30 minutes
5. **Instructions:**
  - Divide participants into small groups and give each group samples of baked products.
  - Provide them with a checklist for quality check and ask them to evaluate the samples based on the given parameters.
  - Then, ask them to cool down the baked products using the appropriate methods.
  - Once they have completed the activity, ask each group to share their observations and experiences.
6. **Outcome:** Participants will gain hands-on experience in checking the quality of baked products and cooling them down properly.

## Field Visit

1. **Objective:** Observe the quality control and cooling processes of a local bakery or pastry shop.
2. **Resources:** Transportation to the bakery or pastry shop
3. **Time Duration:** 1-2 hours
4. **Instructions:**
  - Schedule a field visit to a local bakery or pastry shop.
  - Observe their quality control and cooling processes.
  - Take notes and pictures to share with the group.
  - Discuss your observations with the group and identify any areas of improvement.

5. **Outcome:** The participants will gain real-world experience and insight into quality control and cooling processes in a professional setting.

## Notes for Facilitation



- Encourage participants to ask questions and share their experiences.
- Ensure that the samples provided are of good quality and have a variety of faults.
- Provide feedback and guidance on the participants' evaluation and cooling methods.
- Remind participants of the importance of proper quality check and cooling for achieving high-quality baked products.
- Allow time for participants to reflect on the activity and its relevance to their work or personal life.



## Unit 4.7: Packaging of Baked Products

### Unit Objectives

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

1. State the process of packaging baked products
2. Identify different types of packaging materials used for baked goods

### Resources to be Used

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

### Say

Good morning trainees in this session, we will learn about the importance of packaging and the different types of packaging materials used for baked products.

### Do

- Begin by introducing the topic and explaining the importance of packaging in the bakery industry.
- Discuss the different types of packaging materials used for baked products and their pros and cons.
- Show images and videos of different packaging techniques to give participants a better understanding of the process.

### Ask

- What are some of the challenges faced when packaging baked products?
- What are the most commonly used types of packaging materials for baked products in the market?

### Elaborate

- Packaging plays a crucial role in preserving the freshness and quality of baked products.
- Different types of packaging materials such as plastic, paper, and metal can be used for packaging.
- The choice of packaging material depends on the type of product, packaging cost, and consumer preferences.

## Activity

1. **Activity Name:** Packaging Design Challenge
2. **Objective:** To encourage participants to think creatively and come up with innovative packaging ideas for a specific baked product.
3. **Resources:** Paper, markers, glue, scissors, samples of baked products.
4. **Time Duration:** 45 minutes
5. **Steps involved:**
  - Divide participants into four groups.
  - Assign each group a specific baked product such as cupcakes, bread, or cookies.
  - Provide the necessary materials and ask each group to design a packaging solution for the assigned product.
  - Set a time limit of 30 minutes for the activity.
  - Ask each group to present their packaging design to the class and explain the reasoning behind their design.
6. **Outcome:** Participants will learn about the importance of packaging and gain experience in designing innovative packaging solutions.

## Notes for Facilitation

- Ensure a creative and collaborative atmosphere during the activity.
- Encourage participants to think outside the box and explore innovative packaging ideas.
- Provide guidance and feedback to the groups during the design process.
- Consider the size and shape of the baked product when selecting packaging materials.
- Pay attention to food safety regulations and ensure packaging materials are suitable for direct contact with food.
- Labeling should be clear, accurate, and compliant with relevant regulations.

## Unit 4.8: Packaging of Baked Products

### Unit Objectives

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

1. State the method of storing baking ingredients
2. State the method of storing finished products

### Resources to be Used

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

### Say

- Good morning trainees in this session, we will cover important guidelines for storing baking ingredients and finished products.
- We will also discuss two methods of storage - FIFO and FEFO, and their benefits.
- By the end of the session, you will be able to ensure the quality and freshness of your baked goods by storing them correctly.

### Do

- Introduce the topic and its relevance to the baking process.
- Present the handouts and samples to help the trainees understand the proper storage methods.
- Explain the importance of FIFO and FEFO methods, and how they can be implemented in a bakery setting.
- Encourage the trainees to ask questions and share their experiences with storage.

### Ask

- Why is it important to store baking ingredients and finished products properly?
- What happens when ingredients or products are stored incorrectly?

### Elaborate

- Storage of baking ingredients: Importance of ingredient quality, specific storage requirements, and best practices.
- Storage of finished products: Packaging, shelf life considerations, organization, and maintaining product freshness.

- FIFO and FEFO methods: First In, First Out (FIFO) ensures using older stock first, while First Expired, First Out (FEFO) prioritizes products with earlier expiration dates.

## Demonstrate

Show examples of properly and improperly stored ingredients and products.

Demonstrate how to label containers with the date of storage and expiration.

## Activity

1. **Activity Name:** Labeling and Sorting
2. **Objective:** To reinforce the importance of proper storage and the FIFO method
3. **Resources:** Storage containers, labels, baking ingredients and finished products
4. **Time Duration:** 30 minutes
5. **Instructions:**
  - Divide the trainees into groups of three or four.
  - Provide each group with a set of storage containers and labels, along with a variety of baking ingredients and finished products.
  - Instruct the groups to label the containers with the date of storage and the product name, and then sort the products according to the FIFO method.
  - After 15 minutes, ask each group to present their sorted containers and explain their labeling system.
6. **Outcome:** The trainees will have a better understanding of the importance of proper storage and how to use the FIFO method effectively.

## Activity

1. **Activity Name:** Organize Your Storage
2. **Objective:** Organize a storage area using the principles of FIFO or FEFO.
3. **Resources:** Baking ingredients, finished products, storage containers, shelves
4. **Time Duration:** 30-45 minutes
5. **Instructions:**
  - Divide participants into small groups.
  - Provide each group with a storage area and a selection of baking ingredients and finished products.
  - Instruct the groups to organize the storage area according to either the FIFO or FEFO method.
  - Encourage them to consider factors such as expiration dates, product accessibility, and clear labeling.
  - Give them a specific time frame to complete the activity.
  - Once finished, have each group present their organized storage area and explain their approach.
  - Facilitate a discussion on the benefits and challenges of implementing FIFO or FEFO.

6. **Outcome:** Participants will gain hands-on experience in organizing a storage area, applying the principles of FIFO or FEFO to ensure proper ingredient rotation and product freshness.

## Notes for Facilitation

- Encourage trainees to share their experiences and challenges with storage.
- Remind trainees to always label containers and use the FIFO method to prevent waste and ensure freshness.
- Emphasize the importance of maintaining a clean and organized storage area.
- Provide additional resources for trainees who want to learn more about storage and inventory management.
- Make sure to follow all safety guidelines when handling and storing baking ingredients and finished products.

## Unit 4.9: Post-Production Cleaning and Maintenance

### Unit Objectives

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

1. Demonstrate the process of cleaning the work area and machineries after production

### 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 cleaning and maintaining equipment and facilities after production.
- We will cover the method of post-production cleaning and how to create and implement effective cleaning schedules.

### Do

- Discuss the different cleaning materials and solutions that can be used and their effectiveness.
- Explain the steps for effective post-production cleaning and how to use a cleaning checklist.
- Discuss the importance of creating a cleaning schedule and how to implement it effectively.

### Ask

- Why is post-production cleaning important?
- What cleaning materials and solutions have you used before?

### Elaborate

- Post-production cleaning is the process of cleaning and maintaining equipment and facilities after production to ensure that they remain hygienic and safe to use.
- The method of post-production cleaning involves several steps, including sweeping, wiping, disinfecting, and drying.
- A cleaning checklist can help ensure that all areas are cleaned thoroughly, and a cleaning schedule can help ensure that cleaning is done regularly and on time.

## Demonstrate

Demonstrate the steps involved in post-production cleaning, using a specific area or equipment as an example. Show how to use a cleaning checklist and explain the importance of following a cleaning schedule.

## Activity

1. **Activity Name:** Cleaning Inspection Exercise
2. **Objective:** To identify and correct cleaning mistakes
3. **Resources:** Cleaning materials and checklists
4. **Time Duration:** 20-30 minutes
5. **Instructions:**
  - Divide the trainees into pairs or small groups.
  - Assign each group a specific area or piece of equipment to clean.
  - Have the groups clean the assigned area or equipment and use the cleaning checklist to ensure that all areas are covered.
  - Once the cleaning is done, have the groups inspect each other's work and identify any mistakes or missed areas.
  - Have the groups correct any mistakes and re-inspect until all areas are clean.
6. **Outcome:** Trainees will learn the importance of thorough cleaning and the importance of using a cleaning checklist.

## Notes for Facilitation

- Encourage trainees to ask questions and provide real-world examples of post-production cleaning.
- Emphasize the importance of following cleaning schedules and the consequences of not following them.
- Explain the importance of personal protective equipment and safe handling of cleaning materials.
- Remind trainees of the importance of proper storage and maintenance of cleaning materials and equipment.
- Provide examples of effective cleaning schedules and checklists to help trainees implement these practices in their own workplaces.

## Answers to Exercises for PHB

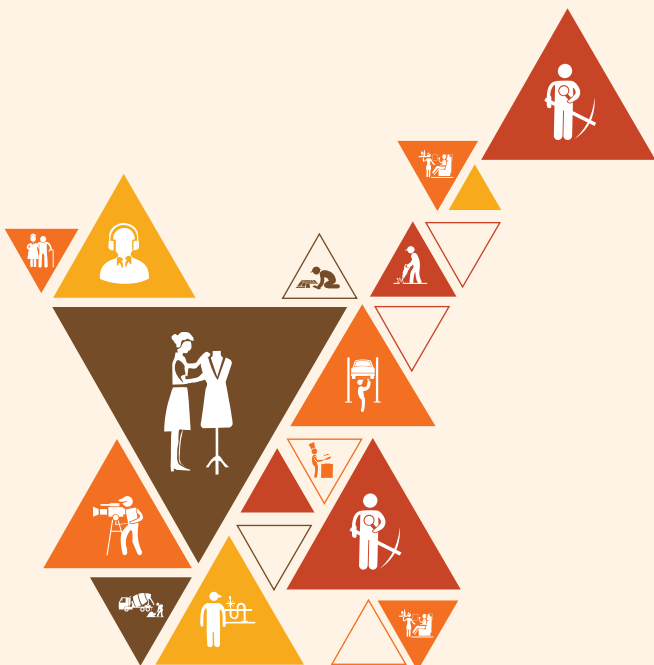
1. d) 1,2,3 and 5
2. b) Nut driver
3. b) Glass racks
4. c) 15 minutes
5. b) Ensure that the oven is placed properly
6. c. After dividing the dough
7. b. Preheat the oven to required temperature
8. d. Ensure that the pans are of same size
9. a. If the temperature is less, the dough will not rise sufficiently
10. d. All of the above
11. a. The cake pan should be filled up to two-thirds
12. a. 1 --> 2 --> 3 --> 4
13. b. 1, 2 and 4
14. c. Dismantle the oven
15. c. 350°F to 400°F
16. d. All of the above.
17. b. 1 --> 2 --> 3 --> 4





# 5. Complete Documentation and Record Keeping Related to Bakery Products

Unit 5.1 - Documentation and Record Keeping



FIC/N5020

## 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. State ERP system and maintaining documentation via ERP

## Unit 5.1: 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.

### 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 related to Documentation and Record Keeping.

### Say

- Good morning trainees today, we will be discussing the importance of documentation and record keeping in a professional setting.”
- Throughout this session, we will explore why documentation is necessary, learn about effective record keeping practices, and introduce the concept of ERP solutions.

### Do

- Present the importance of documentation and record keeping, different types of documents and records, and how to maintain them.
- Explain the basics of ERP solutions and how they can help streamline record-keeping processes.
- Demonstrate ERP software to showcase its features and advantages.
- Conduct an activity to apply the knowledge gained during the session.

### Ask

- Why do you think documentation and record keeping are essential in any business operation?
- How do you currently keep records in your workplace?
- Have you ever used an ERP solution before? If yes, what were the advantages?

## Elaborate

- **Need for Documentation:**  
Accurate and comprehensive documentation is critical for legal compliance, quality assurance, and process efficiency. Documentation also plays a role in capturing critical information, facilitating communication, and ensuring accountability.
- **How to Keep Records?**  
Best practices for organizing and storing documents include using clear naming conventions, implementing version control, and establishing backup procedures. It is also important to maintain confidentiality, data integrity, and accessibility of records, and to employ effective data entry, categorization, and retrieval strategies.
- **Introduction to ERP Solutions:**  
Enterprise Resource Planning (ERP) systems integrate and streamline business processes. Benefits of ERP solutions in record keeping include centralized data management, real-time updates, and automated workflows. When selecting and implementing an ERP system, it is important to consider factors such as cost, scalability, and user training.

## Demonstrate

Show a demonstration of ERP software to give a practical understanding of how the software works.

## Activity

1. **Activity Name:** “Record Keeping Challenge”
2. **Objective:** To apply knowledge gained during the session to create an efficient record-keeping system.
3. **Resources:** Whiteboard, markers, handouts.
4. **Time Duration:** 30 minutes
5. **Steps involved:**
  - Divide the participants into groups of 3-4 members each.
  - Provide a case study or scenario where the participants need to create a record-keeping system.
  - Participants have to work together and present their system on the whiteboard within 20 minutes.
  - Allow 5 minutes for each group to present their system to the entire group.
  - Encourage feedback and suggestions from the other groups to improve their record-keeping system.
6. **Outcome:** Participants will learn how to apply their knowledge to create an efficient record-keeping system.

## Notes for Facilitation

- Be attentive and actively listen to the participants.
- Encourage participation and feedback from the participants.
- Emphasize the importance of documentation and record keeping in any business operation.
- 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.

## Answers to Exercises for PHB

1. b) Raw materials records
2. a) 2, 3 and 4
3. b) Date of purchase of ingredients of finished goods
4. d) Date of purchase of ingredients of finished goods
5. a) 1, 3 and 4.
6. c) 1, 2, 3 and 4.
7. a) After completion of baking.
8. b) Quantity of ingredients.
9. a) 1, 3 and 4.



## Key Learning Outcomes



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

1. State the importance of safety, hygiene, and sanitation in the baking industry
2. Follow the industry standards to maintain a safe and hygiene workplace
3. Follow HACCP principles to eliminate food safety hazards in the process and products
4. Follow safety practices in the work area



## Unit 6.1: 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 hygiene 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 related to Good Manufacturing Practices (GMP).

### 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. **Time Duration:** 30 minutes
5. **Steps involved:**
  - Divide the trainees into groups of four.
  - 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.
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 6.2: 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), Case Study Handout, Pen and Paper.

### Say

- Welcome to this session on Hazard Analysis and Critical Control Point or HACCP.
- Today, we will be learning about the principles and guidelines of HACCP, and how it is used to ensure food safety.
- Emphasize that this session will cover the basics of HACCP and provide examples of how it is applied in real life.

### Do

- Use the PowerPoint presentation to explain the principles of HACCP.
- Discuss the case studies to demonstrate how HACCP is applied in different industries.
- Provide an example HACCP plan and explain how it is developed.

### Ask

- Have you heard of HACCP before? What do you know about it?
- Why do you think HACCP is important?
- Can you think of any industries where HACCP might be used?

### Elaborate

- What is HACCP?  
HACCP stands for Hazard Analysis and Critical Control Points, which is a systematic approach to food safety that aims to prevent hazards or risks that may occur during food production processes. The

HACCP system involves identifying potential hazards, establishing critical control points, monitoring, and controlling them throughout the food production process.

- **Example of HACCP Plan**

An example of a HACCP plan for a food processing plant may include identifying potential hazards, such as biological, chemical, or physical hazards, at each stage of the production process. Critical control points may include temperature control, cleaning and sanitation procedures, and testing and sampling of raw materials and finished products. Monitoring and control measures may include routine checks and tests, regular equipment maintenance, and employee training on proper food handling procedures.

## Activity

1. **Activity Name:** HACCP Plan Development
2. **Objective:** To apply the principles of HACCP to develop a plan
3. **Resources:** Case study, flipchart and markers, handouts
4. **Time Duration:** 45 minutes
5. **Steps involved:**
  - Divide the trainees into 4 groups.
  - Provide each group with a case study.
  - Instruct the groups to develop an HACCP plan for the case study.
  - Provide guidance and answer questions as needed.
  - Have each group present their plan to the class.
6. **Outcome:** Trainees will have a better understanding of how to develop an HACCP plan.

## Notes for Facilitation

- Encourage participation and discussion from all trainees.
- Ensure that everyone has an opportunity to ask questions and provide input.
- Emphasize the importance of HACCP and the potential consequences of not using it.
- Stress the need for a systematic approach to hazard identification and control.
- Provide real-life examples to illustrate the principles of HACCP.

## Unit 6.3: 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.

### Ask

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

## 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.

- **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.

- **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. **Time Duration:** 30 minutes

5. **Steps involved:**

- 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.



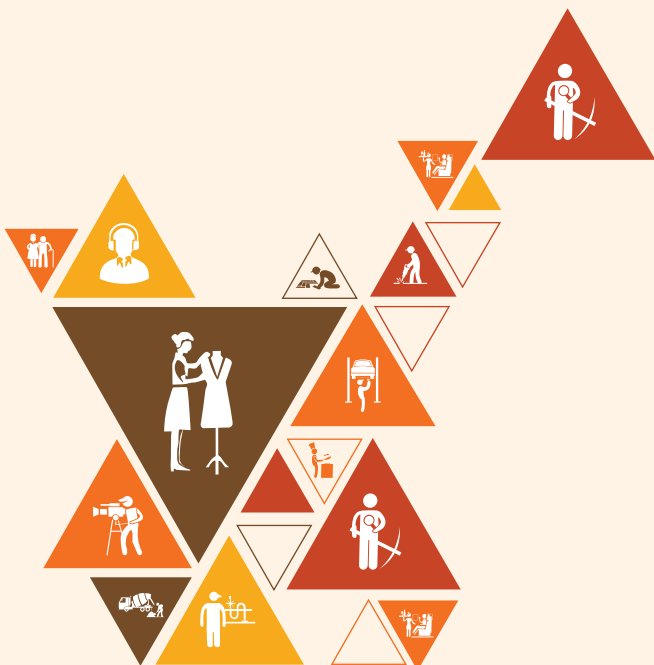
## Answers to Exercises for PHB

1. UNIT 6.3: Safety Practices  
Topic: 6.3.2 Emergency Measures
2. UNIT 6.2: Hazard Analysis and Critical Control Point (HACCP)  
Topic: 6.2.1 What is HACCP?
3. UNIT 6.1: Good Manufacturing Practices (GMP)  
Topic: 6.1.1 Good Manufacturing Practices (GMP)
4. UNIT 6.1: Good Manufacturing Practices (GMP)  
Topic: 6.1.1 Good Manufacturing Practices (GMP)
5. UNIT 6.3: Safety Practices  
Topic: 6.3.2 Emergency Measures





## 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

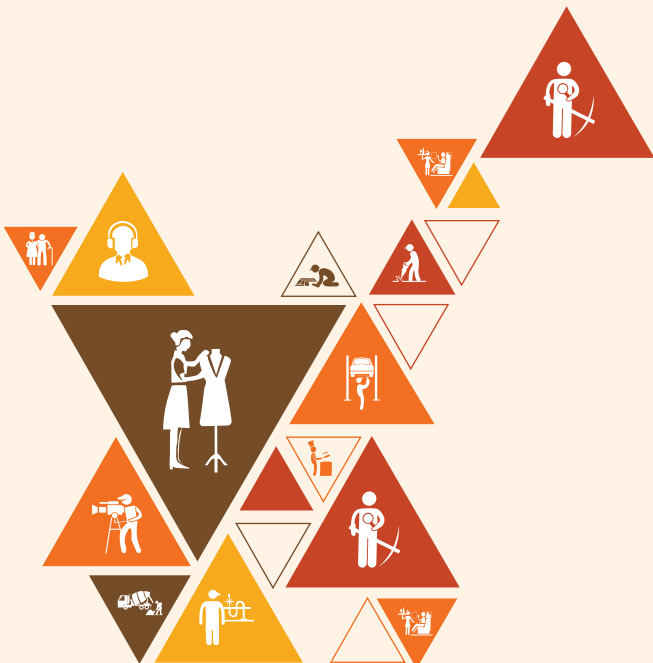


## 8. Annexures

Annexure I: Training Delivery Plan

Annexure II: Assessment Criteria

Annexure III: List of QR Codes Used in PHB



## Annexure I

### Training Delivery Plan

Training Delivery Plan			
<b>Program Name:</b>	Baking Technician/Operative		
<b>Qualification Pack Name &amp; Ref. ID</b>	FIC/Q5005 V3.0		
<b>Version No.</b>	3.0	<b>Version Update Date</b>	29-07-2021
<b>Pre-requisites to Training (if any)</b>	<ol style="list-style-type: none"> <li>1. Baking process for all baked process</li> <li>2. Training on food standards for baked products</li> <li>3. Operating different types of baking ovens</li> <li>4. GMP</li> <li>5. HACCP</li> <li>6. QMS 7.Computer basics</li> <li>7. Training in food Safety Standards and Regulations as per FSSAI (Mandatory)</li> </ol>		
<b>Training Outcomes</b>	<p><b>By the end of this program, the participants will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Maintain work area and process machinery for baking appropriately</li> <li>2. Prepare for production of bakery products as per production needs</li> <li>3. Prepare bakery products as per standard work practices</li> <li>4. Document and record necessary documents</li> <li>5. Apply safety, hygiene and sanitation practices at the workplace effectively</li> </ol>		

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
1	<b>Introduction to the training program and overview of food processing industry</b>	<b>Role of Baking Technicians in the Food Processing Industry</b>	<ul style="list-style-type: none"> <li>• Describe food processing and its sub-sectors</li> <li>• Discuss the future trends and career growth opportunities available to baking technicians in the food processing industry.</li> <li>• Summarise the key roles and responsibilities of a 'Baking Technician/ Operative'.</li> </ul>	FIC/N5017 v1.0	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook	3 Theory (3:00) Practical (0:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			<ul style="list-style-type: none"> <li>Discuss the role of organisational policies and procedures in the job.</li> <li>List the sequence of tasks performed for baking.</li> </ul>				
2	Prepare work area and equipment for baking	Clean and Maintain Work Area	<ul style="list-style-type: none"> <li>Show how to clean and maintain the cleanliness of the work area using approved sanitisers and keep it free from dust, waste, flies and pests</li> </ul>	FIC/N5017 v1.0 PC1	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook, Baking ovens, baking sheet and rack, proof box, refrigerator, commercial mixer, wire whisker, packaging machine, protective gloves, headcaps, aprons, safety goggles, safety boots, mouth masks, sanitiser and food safety manuals	8 Theory (3:00) Practical (5:00)
		Chemical Agents Utilised for Cleaning	<ul style="list-style-type: none"> <li>List the chemical agents utilised for cleaning and maintaining the work area and baking equipment.</li> </ul>	FIC/N5017 v1.0 KU8, KU9, KU10			7 Theory (2:00) Practical (5:00)
		Safety and Hygiene	<ul style="list-style-type: none"> <li>Assess the safety and hygiene of the work area for food processing</li> </ul>	FIC/N5017 v1.0 PC2			7 Theory (2:00) Practical (5:00)
		Waste Disposal	<ul style="list-style-type: none"> <li>Discuss the significance of disposing waste materials as per defined SOPs and industry requirements</li> </ul>	FIC/N5017 v1.0 PC3			7 Theory (2:00) Practical (5:00)
		Working and Performance of Machines	<ul style="list-style-type: none"> <li>Evaluate the working and performance of all machines and tools used for production to ensure their efficiency.</li> </ul>	FIC/N5017 v1.0 PC4			7 Theory (2:00) Practical (5:00)
		Cleaning of Machinery and Tools	<ul style="list-style-type: none"> <li>Demonstrate the proper cleaning of machinery and tools using approved sanitisers and following specified standard operating procedures.</li> </ul>	FIC/N5017 v1.0 PC5, KU13			7 Theory (2:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		<b>Organising Tools and Equipment</b>	<ul style="list-style-type: none"> <li>Organise and place the necessary tools required for the production process to optimise efficiency.</li> </ul>	FIC/N5017 v1.0 PC6			7 Theory (2:00) Practical (5:00)
		<b>Repairs Minor Faults</b>	<ul style="list-style-type: none"> <li>Apply problem-solving skills to attend to minor repairs or faults in machines, if required, to ensure that the production process is not hindered.</li> </ul>	FIC/N5017 v1.0 PC7			7 Theory (2:00) Practical (5:00)
3	<b>Prepare for baking products in the oven</b>	<b>Plan Production for baking products in an oven</b>	<ul style="list-style-type: none"> <li>Analyse and interpret the production orders received from the supervisor.</li> <li>Demonstrate how to plan the production process.</li> <li>Plan the production schedule as per organisational standards and instructions while ensuring prioritisation of urgent orders, optimal utilisation of machine capacity, manpower, etc.</li> </ul>	FIC/N5018 v1.0 PC1, PC2, KU17	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook, Baking ovens, baking sheet and rack, proof box, refrigerator, commercial mixer, wire whisker, packaging machine, protective gloves, head caps, aprons, safety goggles, safety boots, mouth masks, sanitiser and food safety manuals	8 Theory (3:00) Practical (5:00)
		<b>Plan equipment utilisation and manpower for baking products in an oven</b>	<ul style="list-style-type: none"> <li>Evaluate the working and performance of specific equipment required for the process, including fuel flow and burner, proofer/oven, conveyor, control panel, etc.</li> </ul>	FIC/N5018 v1.0 PC3, PC4, PC5, PC6, KU11, KU12, KU13			8 Theory (3:00) Practical (5:00)



SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			<ul style="list-style-type: none"> <li>Calculate the processing time for each batch to ensure efficient utilisation of machinery.</li> <li>Develop a plan to utilise machinery for multiple products without compromising the quality of the finished products and to optimise production and save energy.</li> <li>Assign tasks and responsibilities to assistants and helpers to ensure smooth functioning of the production process.</li> </ul>				
		<b>Analysing Process Charts and Optimising Equipment</b>	<ul style="list-style-type: none"> <li>Analyse the process chart or product flow chart to determine the appropriate steps required for baking the product(s).</li> <li>Organise and prepare the necessary equipment, including oven racks, cooling racks, proof box, conveyor, and oven, according to established standards.</li> <li>Demonstrate proficiency in calibrating and pre-heating the oven to the specified temperature as per the oven chart, ensuring proper baking conditions.</li> </ul>	FIC/N5018 v1.0 PC7, PC8, PC9, PC10, PC11, KU14			7 Theory (2:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		<b>Effective Conveyor Operation and Emergency Handling in Baking</b>	<ul style="list-style-type: none"> <li>Set up the conveyor for continuous operation by adjusting the speed of the conveyor, setting baking time and temperature controls.</li> <li>Verify the working and performance of equipment by starting the equipment and observing gauges to maintain heat according to specifications.</li> <li>Organise and maintain accessibility of tools to attend to minor repairs or faults that may occur during operation.</li> <li>Discuss the importance of handling emergency situations (e.g.: fire, power failure) while baking.</li> </ul>	FIC/N5018 v1.0 PC12, PC13, PC14, KU13, KU14			7 Theory (2:00) Practical (5:00)
4	<b>Bake bakery products in the oven</b>	<b>Handle proofing for bread preparation Part - 1</b>	<ul style="list-style-type: none"> <li>Set the proof box to the required temperature and humidity according to the proofing chart to ensure that products proof effectively.</li> <li>Analyse the proofing chart and production chart to determine the appropriate loading sequence for proofing the products.</li> </ul>	FIC/N5019 v1.0 PC1, PC2, KU11, KU12, KU13, KU14, KU15	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook, Baking ovens, baking sheet and rack, proof box, refrigerator, commercial mixer, wire whisker,	8 Theory (2:00) Practical (6:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		<b>Handle proofing for bread preparation Part - 2</b>	<ul style="list-style-type: none"> <li>Load the proof box in accordance with the established production sequence to ensure optimal proofing conditions.</li> <li>Monitor and record proof box parameters such as temperature and humidity to ensure that they are within the desired range for the specific product being proofed.</li> </ul>	FIC/N5019 v1.0 PC2, PC3, KU11, KU12, KU13, KU14, KU15		packaging machine, protective gloves, head caps, aprons, safety goggles, safety boots, mouth masks, sanitiser and food safety manuals	8 Theory (2:00) Practical (6:00)
		<b>Handle proofing for bread preparation Part - 3</b>	<ul style="list-style-type: none"> <li>Evaluate the importance of monitoring products in the proof box during the bread-making process.</li> <li>Demonstrate the ability to pull bread from the proof box at specified heights to assess proofing progress.</li> <li>Discuss the importance of monitoring the proof box and the products coming out of the proof box.</li> </ul>	FIC/N5019 v1.0 PC5, PC6, PC7, KU11, KU12, KU13, KU14, KU15			8 Theory (2:00) Practical (6:00)
		<b>Oven Operation and Loading Procedures</b>	<ul style="list-style-type: none"> <li>Demonstrate how to pre-heat the oven to specified temperature and check humidity level (if specified)</li> </ul>	FIC/N5019 v1.0 PC8, PC9			8 Theory (2:00) Practical (6:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			<ul style="list-style-type: none"> <li>Apply the correct loading sequence and process parameters for each product being baked, as per the production chart/proofing chart.</li> </ul>				
		<b>Adjusting Oven Parameters</b>	<ul style="list-style-type: none"> <li>Demonstrate the ability to adjust oven parameters based on the product being baked and desired quality standards.</li> </ul>	FIC/N5019 v1.0 PC10			8 Theory (2:00) Practical (6:00)
		<b>Loading and Inspecting Filled Pans</b>	<ul style="list-style-type: none"> <li>Explain how to observe filled baking pans (to be loaded in oven) to determine whether pans are filled to standard.</li> <li>Load filled baking pans into ovens while ensuring that the dough pieces are placed corner to corner.</li> <li>Inspect the spacing between pans and ensure they are in accordance with defined standard operating procedures (SOPs).</li> </ul>	FIC/N5019 v1.0 PC11, PC12, PC13			8 Theory (2:00) Practical (6:00)
		<b>Controlling Conveyor Speed and Oven Parameters</b>	<ul style="list-style-type: none"> <li>Demonstrate the ability to control the speed of the conveyor to regulate the number of pans entering the oven and control the baking time of different products in continuous operation.</li> </ul>	FIC/N5019 v1.0 PC14, PC15			8 Theory (2:00) Practical (6:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			<ul style="list-style-type: none"> <li>Analyse and interpret oven parameters such as temperature and time during the baking process to ensure that the products are being baked at the correct temperature and for the correct amount of time.</li> </ul>				
		<b>Observing and Unloading Baked Products</b>	<ul style="list-style-type: none"> <li>Observe colour of the baking product to detect under/over baking and to achieve finished product of uniform quality.</li> <li>Demonstrate proficiency in unloading the oven after the baking process is complete.</li> </ul>	FIC/N5019 v1.0 PC16, PC17			8 Theory (2:00) Practical (6:00)
		<b>Product Quality Assessment through Sensory Analysis</b>	<ul style="list-style-type: none"> <li>Check the quality of the product through sensory parameters such as colour, size, appearance, texture, aroma. etc.</li> </ul>	FIC/N5019 v1.0 PC18			8 Theory (2:00) Practical (6:00)
		<b>Unloading and Cooling Baked Products</b>	<ul style="list-style-type: none"> <li>Demonstrate the proper technique for unloading pans/trays from the oven to improve the overall shape of the baked product.</li> <li>Show how to place baked product on the cooling racks and transfer to the cooling room/cooling area.</li> </ul>	FIC/N5019 v1.0 PC19, PC20			8 Theory (2:00) Practical (6:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		<b>Proper Cleaning and Stacking of Baking Pans</b>	<ul style="list-style-type: none"> <li>Remove excess waste from the baking pans using appropriate tools and techniques.</li> <li>Stack the emptied baking pans in the designated area.</li> </ul>	FIC/N5019 v1.0 PC21, PC22			8 Theory (2:00) Practical (6:00)
		<b>Proper Storage of Empty Pans</b>	<ul style="list-style-type: none"> <li>Ensure that empty pans are stored appropriately to avoid damage and contamination.</li> </ul>	FIC/N5019 v1.0 PC23			8 Theory (2:00) Practical (6:00)
		<b>Effective Monitoring and Communication in Production Processes</b>	<ul style="list-style-type: none"> <li>Evaluate the temperature and controls of the oven to determine the appropriate settings for the next batch of products.</li> <li>Report any discrepancies or concerns noticed during each stage of production to the department supervisor to ensure immediate action is taken.</li> </ul>	FIC/N5019 v1.0 PC24, PC25			8 Theory (2:00) Practical (6:00)
		<b>Performing Post production Cleaning</b>	<ul style="list-style-type: none"> <li>Display the techniques to clean the machines post completion of production process.</li> <li>Discuss the standard techniques used in cleaning the machines such as CIP &amp; COP</li> </ul>	FIC/N5019 v1.0 PC26, KU20, KU21, KU27, KU28			8 Theory (2:00) Practical (6:00)
		<b>Conducting Regular maintenance of equipment</b>	<ul style="list-style-type: none"> <li>Demonstrate the ability to attend to minor repairs and faults of all machines in the production facility.</li> </ul>	FIC/N5019 v1.0 PC27, PC28, KU16			8 Theory (2:00) Practical (6:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			<ul style="list-style-type: none"> <li>Implement the maintenance schedule by carrying out the necessary tasks as per the established schedule, following the standard operating procedures or suppliers' instructions/ manuals.</li> </ul>				
5	<b>Complete documentation and record keeping related to baking products in the oven</b>	<b>Document and maintain records of raw materials related to baking products in the oven</b>	<ul style="list-style-type: none"> <li>Record details of all raw materials handled (dough/ batter) and document the raw material details such as raw materials handled, condition and weight of the raw material while receiving, after proofing process, before loading in oven etc., as per company standards.</li> <li>Apply company standards to document the raw material details, including the type of raw materials handled and their respective weights, throughout the production process.</li> <li>Verify and track the documented information from finished products to raw materials in the event of quality concerns or during quality management system audits.</li> </ul>	FIC/N5020 v1.0 PC1, PC2, PC3	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook,	7 Theory (2:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		<b>Documentation and Planning for Production Processes</b>	<ul style="list-style-type: none"> <li>Document production plan with details such as the product details, production sequence, equipment and machinery details, efficiency and capacity utilisation of equipment</li> <li>Document process details such as type of raw material used, process parameters (temperature, time etc. as applicable) for entire process handled in process chart or production log for all products produced.</li> </ul>	FIC/N5020 v1.0 PC4, PC5, KU9			7 Theory (2:00) Practical (5:00)
		<b>Effective Documentation and Record-Keeping</b>	<ul style="list-style-type: none"> <li>Document batch size, raw material used, yield after each stage of process, wastage, energy utilisation and final products produced.</li> <li>Maintain record of observations (if any) or deviations related to process and production.</li> <li>Verify documents and track them from finished product to raw material/s.</li> </ul>	FIC/N5020 v1.0 PC6, PC7, PC8			8 Theory (3:00) Practical (5:00)
		<b>Document and maintain record of finished products</b>	<ul style="list-style-type: none"> <li>Document and maintain records of the types of finished products.</li> </ul>	FIC/N5020 v1.0 PC9, PC10, PC11, PC12			8 Theory (3:00) Practical (5:00)



SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			<ul style="list-style-type: none"> <li>Document the finished products details such as weight of product, baking time, cooling condition, cooling time, batch number, time of packing, quality parameters (physical parameters), bath number, date of manufacture, date of expiry, other label details etc., as per company standards.</li> <li>Verify and track documents from finished products to raw materials to identify the source of any quality concerns and for quality management system audits.</li> </ul>				
6	<b>Food safety, hygiene and sanitation for processing fish and sea food</b>	<b>Ensuring Food Safety and Hygiene in the Production Process Part - 1</b>	<ul style="list-style-type: none"> <li>Analyse the food safety and hygiene procedures followed in the organisation to ensure compliance with regulations and standards.</li> <li>Apply personal hygiene practices such as wearing gloves, hairnets, masks, ear plugs, goggles, and shoes to prevent contamination of food products.</li> </ul>	FIC/N9001 v1.0 PC1, PC2, PC3, KU12, KU13	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook, Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	8 Theory (3:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			<ul style="list-style-type: none"> <li>Evaluate and ensure the hygienic production of food products by inspecting raw materials, ingredients, and finished products for compliance with physical, chemical, and microbiological parameters.</li> </ul>				
		<b>Ensuring Food Safety and Hygiene in the Production Process Part - 2</b>	<ul style="list-style-type: none"> <li>Demonstrate the ability to select appropriate packaging materials for different types of products and effectively package them to prevent pests and infestation.</li> <li>Evaluate and implement cleaning, maintenance and monitoring procedures for food processing equipment to ensure that they are functioning optimally and only used for the specified purpose.</li> <li>Analyse the importance of housekeeping practices and designate areas for machines/ tools to maintain a clean and organised work environment.</li> </ul>	FIC/N9001 v1.0 PC4, PC5, PC7, PC8, KU20, KU21, KU22			7 Theory (2:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			<ul style="list-style-type: none"> <li>Assess industry standards such as GMP, HACCP, and product recall processes to ensure compliance with regulatory requirements.</li> </ul>				
		<b>Main-taining Workplace Safety and Hygiene</b>	<ul style="list-style-type: none"> <li>Describe Fire Safety.</li> <li>Demonstrate the correct use of safety equipment such as fire extinguisher, eye wash unit, and first aid kit when required to maintain a safe working environment.</li> <li>Explain the importance of attending training on hazard management to understand physical, chemical and biological hazards and measures to control and prevent them.</li> <li>Identify problems such as rodents and pests in the workplace, document them and report to management.</li> <li>Conduct a workplace checklist audit before and after work to ensure safety and hygiene protocol compliance.</li> </ul>	FIC/N9001 v1.0 PC6, PC9, PC10, PC11, PC12, KU11			7 Theory (2:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			<ul style="list-style-type: none"> <li>• Create a document that maintains records of raw materials, packaging materials, processes, and finished products to ensure the credibility and effectiveness of the food safety control system.</li> <li>• Analyse the importance of maintaining such records and the impact they have on the food safety control system.</li> </ul>				
		<b>Apply food safety practices for processing food products</b>	<ul style="list-style-type: none"> <li>• Analyse the quality of food by evaluating criteria such as odour, appearance, taste, and best before date and take appropriate measures to prevent spoilage.</li> <li>• Develop a separate system to store raw materials, finished products, and allergens to prevent cross-contamination.</li> <li>• Create labels for raw materials and finished products and store them in different storage areas based on safe food practices.</li> <li>• Apply stock rotation practices based on FEFO/ FIFO principles to ensure the freshness and quality of products.</li> </ul>	FIC/N9001 v1.0 PC13,PC14, PC15, PC16, KU9, KU10, KU17, KU18, KU19			8 Theory (3:00) Practical (5:00)

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
Total							Theory: 80:00  Practical: 190:00
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 Baking Technician/Operative	
Job Role	Baking Technician/Operative
Qualification Pack	FIC/Q5005 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 evaluations 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
<b>FIC/N5017:</b> Prepare and maintain work area and machineries for baking products in the oven	PC1. clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, flies and pests	10	15
	PC2. ensure that the work area is safe and hygienic for food processing	3	7
	PC3. dispose waste materials as per defined SOPs and industry requirements	5	10
	PC4. check the working and performance of all machineries and tools used for production	5	10
	PC5. clean the machineries and tools used with approved sanitizers following specifications and sops	5	10
	PC6. place the necessary tools required for process	2	3
	PC7. attend to the minor repairs/ faults of all machines, if required	5	10
	<b>NOS Total</b>	<b>35</b>	<b>65</b>
<b>FIC/N5018:</b> Prepare for baking products in the oven	PC1. read and understand the production order from the supervisor	4	6

	PC2. plan production sequence by: grouping products that need to be baked immediately after mixing/creaming grouping similar kind of products (e.g.. fermented products such as bread, buns, puff etc.) grouping products that require same process parameters like baking temperature, time etc. grouping products that require proofing process group products that does not impact the quality of the other when baked together planning maximum capacity utilization of machineries prioritizing urgent orders	5	10
	PC3. check the working and performance of each equipment required for process, particularly the fuel flow and burner, proofer/ oven, conveyor, control panel, etc.	2.5	5
	PC4. calculate the process time for each batch for effective utilization of machineries	2.5	5
	PC5. plan to utilize machineries for multiple products without affecting the quality of the finished products, and to optimize production and saving energy	2	3
	PC6. allot responsibilities/ work to the assistants and helpers	2	3
	PC7. refer to the process chart/ product flow chart for product(s) baked	1	4
	PC8. organize required oven racks/pans	1	4
	PC9. arrange required cooling racks	1	4
	PC10. prepare the proof box by setting parameters such as temperature, humidity, etc. prepare and calibrate oven (in case of batch operation) by pre-heating the oven to the specified temperature as per the oven chart	4	6
	PC11. prepare and calibrate oven (in case of batch operation) by pre-heating the oven to the specified temperature as per the oven chart	2	3
	PC12. prepare the conveyor (in case of continuous operation) by setting the speed of conveyor, baking time, and temperature controls	2	3
	PC13. ensure working and performance of equipments by starting equipment(s),and observing gauges to maintain heat according to specifications	2	3
	PC14. keep the tools accessible to attend minor repairs/faults in case of breakdown	2	3
	PC15. handle emergency situations (e.g.: fire, power failure ) while baking	2	3
	<b>NOS Total</b>	<b>35</b>	<b>65</b>
<b>FIC/N5019: Bake bakery products in the oven</b>	PC1. set the proof box to the required temperature and humidity following the proofing chart, as per specifications and organization standards	2	3
	PC2. refer to the production chart/proofing chart to understand the loading sequence	1	2
	PC3. load the proof box following the production sequence	2	3
	PC4. monitor proof box parameters such as temperature/humidity	2	3
	PC5. monitor product in the proof box	2	3
	PC6. pull bread at specified heights from proof box	2	3
	PC7. monitor the proof box and product coming out of the proof box	2	3
	PC8. pre-heat the oven to specified temperature and check humidity level (if specified)	1	3
	PC9. refer to the production chart/proofing chart to understand the loading sequence and process parameters for each product baked	1	2
	PC10. set the oven parameters such as baking temperature and time for the product baked	1	2
	PC11. observe filled baking pans (to be loaded in oven) to determine whether pans are filled to standard	1	2

	PC12. load the ovens with filled baking pans and check that the dough pieces are placed corner to corner	0.5	1.5
	PC13. observe spacing between pans as per defined SOPs	0.5	1.5
	PC14. monitor and control speed of conveyor to control pans entering oven and to control baking time of various baking product (in continuous operation)	1	2
	PC15. monitor oven parameters such as temperature and time during baking process	2	3
	PC16. observe colour of the baking product to detect under/ over baking and to achieve finished product of uniform quality	2	3
	PC17. unload the oven when the baking process is complete	1	2
	PC18. check the quality of the product through sensory parameters such as colour, size, appearance, texture, aroma. etc.	2	3
	PC19. unload the pans/trays using proper technique (this must be done immediately after being taken out of the oven to improve the overall shape of the bread)	1	2
	PC20. place baked product on the cooling racks and transfer to the cooling room/cooling area	1	2
	PC21. remove excess waste from the baking pans	1	2
	PC22. stack the emptied baking pans in the designated area	1	2
	PC23. ensure that empty pans are stored appropriately to avoid damage and contamination	0.5	1.5
	PC24. adjust or reset controls of the oven to load the next batch product	1	3
	PC25. report discrepancies/concerns in each stage of production to department supervisor for immediate action	1	2
	PC26. clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers	1	2
	PC27. attend minor repairs/faults of all machines (if any)	0.5	1.5
	PC28. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals	1	2
	<b>NOS Total</b>	<b>35</b>	<b>65</b>
<b>FIC/N5020: Complete documentation and record keeping related to baking products in the oven</b>	PC1. record details of all raw materials handled (dough/batter) and document the raw material details such as raw materials handled, condition and weight of the raw material while receiving, after proofing process, before loading in oven etc., as per company standards.	6	4
	PC2. maintain record of observations (if any) related to raw materials, packaging materials	3	2
	PC3. verify the documents and track them from finished product to raw materials, in case of quality concerns, and during quality management system audit	3	2
	PC4. document production plan with details such as the product details, production sequence, equipments and machinery details, efficiency and capacity utilization of equipment	8	7
	PC5. document process details such as type of raw material used, process parameters (temperature, time etc. as applicable) for entire process handled in process chart or production log for all products produced	13	7
	PC6. document batch size, raw material used, yield after each stage of process, wastage, energy utilization and final products produced	6	4
	PC7. maintain record of observations (if any) or deviations related to process and production	3	2













	PC8. verify documents and track them from finished product to raw material/s	3	2
	PC9. document and maintain records of the types of finished products	3	2
	PC10. document the finished products details such as weight of product, baking time, cooling condition, cooling time, batch number, time of packing, quality parameters (physical parameters), bath number, date of manufacture, date of expiry, other label details etc., as per company standards	6	4
	PC11. maintain record of observations or deviations (if any) related to finished products	3	2
	PC12. verify the documents and track from finished product to raw materials, in case of quality concerns and for quality management system audit	3	2
	<b>NOS Total</b>	<b>60</b>	<b>40</b>
<b>FIC/N9001: Ensure food safety, hygiene and sanitation for processing food products</b>	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 and prevent 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
	<b>NOS Total</b>	<b>35</b>	<b>65</b>






<b>DGT/VSQ/N0101: Employability Skills (30 Hours)</b>	Introduction to Employability Skills	1	1
	PC1. understand the significance of employability skills in meeting the job requirements	-	-
	Constitutional values – Citizenship	1	1
	PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-
	Becoming a Professional in the 21st Century	1	3
	PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-
	Basic English Skills	2	3
	PC4. speak with others using some basic English phrases or sentences	-	-
	Communication Skills	1	1
	PC5. follow good manners while communicating with others	-	-
	PC6. work with others in a team	-	-
	Diversity & Inclusion	1	1
	PC7. communicate and behave appropriately with all genders and PwD	-	-
	PC8. report any issues related to sexual harassment	-	-
	Financial and Legal Literacy	3	4
	PC9. use various financial products and services safely and securely	-	-
	PC10. calculate income, expenses, savings etc.	-	-
	PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-
	Essential Digital Skills	4	6
	PC12. operate digital devices and use its features and applications securely and safely	-	-
	PC13. use internet and social media platforms securely and safely	-	-
Entrepreneurship	3	5	
PC14. identify and assess opportunities for potential business	-	-	
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	
Customer Service	2	2	
PC16. identify different types of customers	-	-	
PC17. identify customer needs and address them appropriately	-	-	
PC18. follow appropriate hygiene and grooming standards	-	-	
Getting ready for apprenticeship & Jobs	1	3	
PC19. create a basic biodata	-	-	
PC20. search for suitable jobs and apply	-	-	
PC21. identify and register apprenticeship opportunities as per requirement	-	-	
<b>NOS Total</b>	<b>20</b>	<b>30</b>	

## Annexure III

### List of QR Codes Used in PHB

Module No.	Unit No.	Topic Name	Page No. in PHB	URL	QR Code (s)
1. In-tro-duction	UNIT 1.1: Overview of the Food Processing Industry	1.1.1 Food Processing	10	<a href="https://www.youtube.com/watch?v=J-2EiMVNtpM&amp;t=11s">https://www.youtube.com/watch?v=J-2EiMVNtpM&amp;t=11s</a>	 Overview of Food processing industry
	UNIT 1.2: Overview of the Baking Process	1.2.1 Over-view of the Process of Baking	10	<a href="https://www.youtube.com/watch?v=waGm1_tUUA0">https://www.youtube.com/watch?v=waGm1_tUUA0</a>	 Overview of Baking process
		1.2.1 Over-view of the Process of Baking	10	<a href="https://www.youtube.com/watch?v=DNyzXSb5NcY">https://www.youtube.com/watch?v=DNyzXSb5NcY</a>	 Orientation video
	UNIT 1.3: Roles and Responsibilities of Baking Technician / Operative	1.3.1 Roles and Responsibilities	10	<a href="https://www.youtube.com/watch?v=Yy4gqDdt0Gg">https://www.youtube.com/watch?v=Yy4gqDdt0Gg</a>	 Roles and Responsibilities of baking technician
2. Prepare and Maintain Work Area and Equipment for Baking	UNIT 2.2: Cleaning and Maintenance	2.2.1 Clean-ing and Sani-tiza-tion	25	<a href="https://www.youtube.com/watch?v=QWpU7DAf-Ncs&amp;t=38s">https://www.youtube.com/watch?v=QWpU7DAf-Ncs&amp;t=38s</a>	 Cleaning and sanitation

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	UNIT 2.1: Equipment Used in bakery	2.1.1 Bakery Equipment	25	<a href="https://www.youtube.com/watch?v=zNArOSLoTIY&amp;t=1s">https://www.youtube.com/watch?v=zNArOSLoTIY&amp;t=1s</a>	 Tools and Equipments used in baking process
4. Bake Bakery Products in the Oven	UNIT 4.1: Baker's Math	4.1.1 Baker's Mathematics	70	<a href="https://www.youtube.com/watch?v=S68TG5SVBM-k&amp;t=19s">https://www.youtube.com/watch?v=S68TG5SVBM-k&amp;t=19s</a>	 Baking Process
	UNIT 4.2: Overview of Baking Ingredients	4.2.1 Ingredients Used in the Baking Industry	70	<a href="https://www.youtube.com/watch?v=KF6__mJehd-M&amp;t=466s">https://www.youtube.com/watch?v=KF6__mJehd-M&amp;t=466s</a>	 Baking process- Jeera biscuits and muffins
		4.2.1 Ingredients Used in the Baking Industry	70	<a href="https://www.youtube.com/watch?v=ufJIYOTIhT4&amp;t=33s">https://www.youtube.com/watch?v=ufJIYOTIhT4&amp;t=33s</a>	 Demonstration video on Milk Bread Processing
		4.2.1 Ingredients Used in the Baking Industry	70	<a href="https://www.youtube.com/watch?v=BzVNYwjm6cA">https://www.youtube.com/watch?v=BzVNYwjm6cA</a>	 Demonstration video on banana flour biscuit

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5. Complete Documentation and Record Keeping Related to Production of Ice Cream	UNIT 5.1: Documentation and Record Keeping	5.1.1 Need for Documentation	78	<a href="https://www.youtube.com/watch?v=N382yRgS6q0">https://www.youtube.com/watch?v=N382yRgS6q0</a>	 Packaging of Bakery products
		5.1.3 Introduction to ERP Solutions	78	<a href="https://www.youtube.com/watch?v=LgpdaL3Ejxo">https://www.youtube.com/watch?v=LgpdaL3Ejxo</a>	 Packaging of banana flour biscuits
6. Food Safety, Hygiene and Sanitation for Bakery Products	UNIT 6.1: Good Manufacturing Practices (GMP)	6.1.1 Good Manufacturing Practices (GMP)	89	<a href="https://www.youtube.com/watch?v=RS4A-uczS6E&amp;t=554s">https://www.youtube.com/watch?v=RS4A-uczS6E&amp;t=554s</a>	 GHP, GMP & HACCP
	UNIT 6.2: Hazard Analysis and Critical Control Point (HACCP)	6.2.1 What is HACCP?	89	<a href="https://www.youtube.com/watch?v=daNjRoP_I0c&amp;t=87s">https://www.youtube.com/watch?v=daNjRoP_I0c&amp;t=87s</a>	 Personnel hygiene and employee facilities
<b>Employability Skills (30 Hrs)</b>				<a href="https://www.skillindiadigital.gov.in/content/list">https://www.skillindiadigital.gov.in/content/list</a>	







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