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Food Industry Capacity and Skill Initiative

Facilitator Guide

Sector
Food Processing

Sub-Sector
Fruits & Vegetables

Occupation
Processing- Fruits and Vegetables

Reference ID: FIC/Q0106, Version - 4.0
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Fruit Pulp Processing Technician

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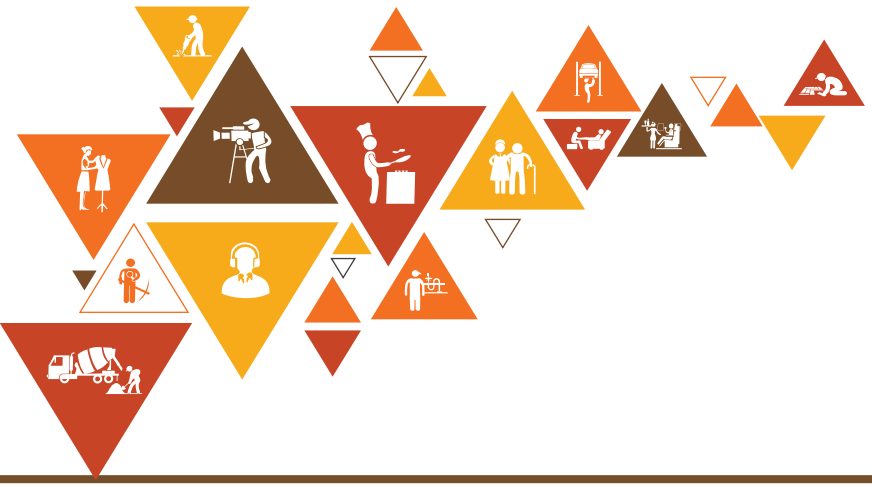

"Skilling is building a better India. If we have to move India towards development then Skill Development should be our mission."

Shri Narendra Modi
Prime Minister of India

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About this Book

This book is designed to provide skill training and/ or upgrade the knowledge and basic skills to take up the job of 'Fruit Pulp Processing Technician' in 'Food Processing' sector. All the activities carried out by a specialist are covered in this course. Upon successful completion of this course, the candidate will be eligible to work as a 'Fruit Pulp Processing Technician'.

This Facilitator Guide is designed to enable training for the specific Qualification Pack (QP). Each National Occupational Standards (NOS) is covered across Unit/s.

Key Learning Objectives for the specific NOS mark the beginning of the Unit/s for that NOS.

1.FIC/N9026: Prepare for Production

2.FIC/N0122: Produce Fruit Pulp from Various Fruits

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

4.FIC/N9902: Work effectively in an organization

5.SGJ/N1702: Optimize resource utilization at workplace

6.FIC/N0103: Produce squash and juices

7.FIC/N0111: Produce jam, jelly and ketchup

8.DGT/VSQ/N0101: Employability Skills

Symbols Used


Key Learning Outcomes


Objectives

Ask


Explain


Practical


Notes


Resources


Activity


Summary


Role Play


Team Activity


Say

Example


Methodology


Do

Table of Contents

Table of Contents

Table of Contents

Table of Contents

Guidelines for the Trainer

As a Trainer, follow the below guidelines:

- Understand your job thoroughly
  - Reach the venue 15 minutes before the training session.
  - Please ensure you have all the necessary training tools and materials for the training session (learning cards, sketch pens, raw materials, etc.).
  - Check the condition of your training equipment, such as a laptop, projector and, camera, relevant tools (depending on the training site).

Before starting any training program, the trainer should concentrate on the below crucial pointers,

- Use best practices and methods of training.
- Create awareness of the quality of work done.
- Explain how to minimise waste.
- Ensure that the participants practice safety measures and use proper PPE.
- Make sure the participant adopts the basic ergonomic principles.
- Create awareness of housekeeping at regular intervals.
- Explain the influence of productivity as a whole.
- Make the class as interactive as possible by adopting activity-based or scenario-based training methodology.

Understand your participants

You will conduct the training program for a certain period as a trainer. To improve the program's effectiveness, you should understand the mindset of the participants and create a good rapport with them. Maintaining a good working relationship with the participants is always essential to achieve better results from the training program.

Adopt the basic etiquette during training

- Greet the participant and introduce yourself.
- Use a gentle pace of voice/tone while speaking with the participant.
- Explain the need and use of the training program.
- Ask the participants to introduce themselves to the group and help them with communication difficulties.
- Clarify their doubts patiently, and do not get irritated if a participant asks the same question repeatedly.
- Understand the level of participants and train them accordingly.
- Watch the participants at work, and note some pointers of performance.
- Give some hints and easy thumb rules which can be easily understood and remembered.
- Always use the three golden words, "Please", "Thank You", and "Sorry".
- Be positive and professional while giving participants feedback; do not criticize or make fun of their performance.
- Identify the faulty practices of the participants and rectify them as soon as possible.
- Always be a good mentor and observer.
- Do not forget to introduce the topic to be covered in the next class.
- Do not forget to recapitulate the topic covered in the last class.

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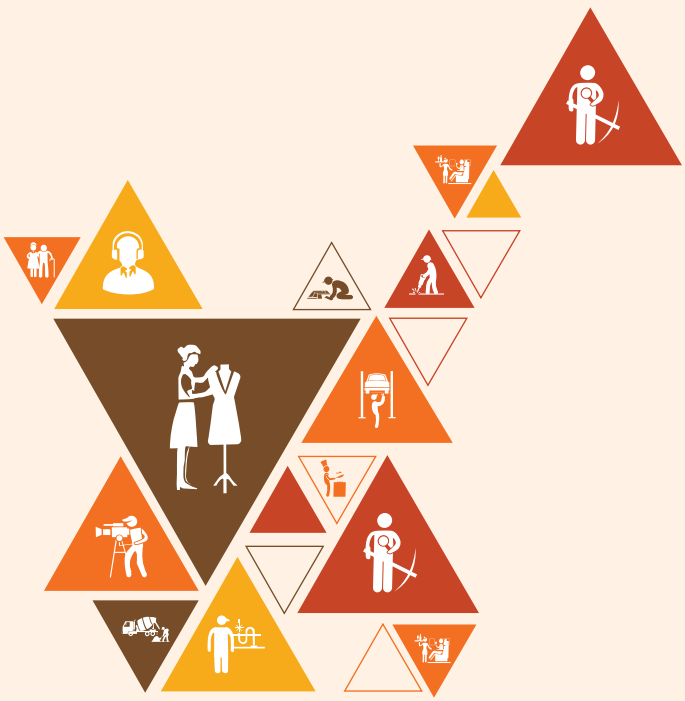
1. Introduction to Food Processing Sector and the Job of Fruit Pulp Processing Technician

Unit 1.1 - Introduction to Food Processing Industry

Unit 1.2 - Roles and Responsibilities of Fruit Pulp Processing Technician



FIC/N0122

Key Learning Outcomes

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

- Describe the food processing industry and its sub-sectors in brief
- Discuss the roles and responsibilities of a fruit pulp processing technician

Icebreaker

Unit Objectives

At the end of the session, the participants will be able to:

- Be familiar with the food processing sub sector and know their position of responsibilities
- Build rapport with fellow participants and the trainer.

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Conduct the group activity.

Say

- Now that we are all familiar with each other's names and actions, each one of you will introduce yourself to us.
- Example. I am _____, coming here from _____, like to _____, love _____ and _____.
- Now that we know something about each other. We will try to take only first names while speaking to each other for the rest of our sessions.
- Let us see how interactive we can make this discussion by working together.
- Now trainer will explain the objective of this module.

Ask

- Welcome the participants and ask them if they know about each other.
- If not, then let them introduce themselves to each other.
- Ask the participant if they have undergone any training.
- Ask the participant to outline the benefits one would derive from this training.

Activity

Brief

- Each participant is given a blank card (visiting card size). Every participant will write their first name on it, big and bold.
- On the back, they will put down two words or phrases that can be used as conversation starters. For example: Classical singer, Patna resident.

Activity Description

- Divide the class into groups of 4-5 participants. Distribute the blank cards and pens to every participant in the group.
- Give the groups enough time (about 5 minutes) to write their name and conversation starters.
- Now ask the groups to meet each other using the name card and converse with them about the two things on the card.
- Give the groups enough time (10 minutes) to meet every group member and know their names.
- Now ask the groups to start mixing around with other groups. Every few minutes, tell the groups to
- change seats to encourage everyone to meet as many people as possible.

Debrief

- Reassemble the group and have all the participants introduce themselves.
- As each individual is introduced, other participants are encouraged to add the information or details shared earlier in the mixing round.

Notes for Facilitation

Discuss

- Was this activity helpful in getting to know some of your fellow participants?
- What were some of the most interesting things discovered during the conversation?

Unit 1.1 - Introduction to Food Processing Industry

Unit Objectives

At the end of the session, the participants will be able to:

- Define food processing and fruits and vegetables processing
- Discuss the food processing industry in brief
- Explain the terminologies used in the process of food processing

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Start the class by asking a few questions on processed foods like:
  - Have you picked up any processed foods from the market?
  - What are the ready made food products you have used
- Explain what food processing is and give an overview of the food processing industry in India.
- Talk about the different sub-sectors within the food processing industry.

Say

- The food processing industry involves the transformation of raw ingredients into processed foods through various methods such as canning, freezing, drying, and packaging. This industry plays a vital role in providing safe, convenient, and nutritious food options to consumers around the world while also contributing to the global economy.

Ask

- What is Food Processing
- Give examples of some Food Processing industry and what products they manufacture

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What is Food Processing?
- Journey of Food from Harvest to Consumer
- India's Food Processing Industry
- Overview of the Fruit and Vegetable Processing Sector
- Methods of Processing Fruits and Vegetables
- Various Terminologies used in the Process of Food Processing

Elaborate

- Clarify the food processing with the help of (Fig 1.1 Level of Food Processing), given in the participant handbook
- Explain the production of the cycle with the help of (figure 1.1.2), given in the participant handbook
- Explain the food processing industry is divided into several sub-sectors with the help of (Fig.1.3 Sub-Sectors of the Food Processing Industry), given in the participant handbook
- Explain processing sub-sector deals with processed foods, semi-processed foods, and packaged foods that are made from fruits and vegetables (Fig.1.4 Various Processed and Semi-Processed Food Products), given in the participant handbook
- Explain the terminologies used in the process of food processing (Table 1.1 Common Terminologies used in Food Processing) , given in the participant handbook

Activity

Brief

- Each group must come up with a list of products developed by every sub-sector in the food processing industry.

Activity Description

- Divide the class into groups of 4-5 participants.
- Assign a sub-sector to each group.
- Give the groups enough time to discuss the processed foods developed within the sub-sector allotted to them. Also, ask them to list the names of popular brands for that produce.
- Now ask the groups to select one person from themselves who would write down the list of products on the board.
- When that participant comes to the board, other group members tell him the list of products they have thought of.

Debrief

- Summarize the list of processed foods and the sub-sectors.
- Add more products to the list with local examples.

Unit 1.2 - Career Opportunities for Fruit Pulp Processing Technician

Unit Objectives

At the end of the session, the participants will be able to:

- Discuss the standard business etiquette and code in the food processing industry
- Discuss the career opportunities available to fruit pulp processing technician in the food processing industry

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Start the session by asking the class: What is the best way to Act in a Workplace.
- Discuss workplace Hygiene and Safety.
- Explain Sanitation and Sanitizing

Say

- A fruit pulp processing technician is in charge of producing fruit pulps and concentrates at a processing plant by operating and maintaining equipment. They are responsible for maintaining the quality and safety of the fruit pulp while reaching production requirements.
- Their responsibilities include monitoring processing parameters, diagnosing equipment difficulties, and assuring safety and environmental compliance. They must also clean and sanitise the processing equipment to prevent contamination.
- Fruit pulp processing technicians must have technical knowledge of fruit processing and be able to work independently or as part of a team.

Ask

- What do you understand by etiquette?
- Give some examples of etiquette?
- What are the roles and responsibility as a student?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Standard Business Etiquette & Code of Conduct
- Roles and responsibilities of Fruit Pulp Processing Technician

Elaborate

- Clarify the standard practices and professional code of ethics that every food organization adheres with the help of (Fig.1.6 Standard Code of Conduct), given in the participant handbook
- Explain the Workplace etiquettes with the help of (Fig.1.6 Standard Workplace/Business Etiquettes), given in the participant handbook
- Explain roles and responsibilities of fruit pulp processing technician with the help of (Table 1.2 Roles and Responsibilities), given in the participant handbook

Activity

Brief

- Conduct a job shadowing or company visit to a fruit pulp processing facility.

Activity Description

- During the visit or job shadowing, students can also interact with technicians and other employees, ask questions, and gain insight into the skills and qualifications required for success in the field.
- Additionally, the instructor can facilitate a discussion with industry professionals to provide students with information on the current job market, career advancement opportunities, and potential challenges and trends in the field.

Debrief

- This activity can help students make informed decisions about their career paths and develop the skills needed to succeed as a Fruit Pulp Processing Technician.

Notes

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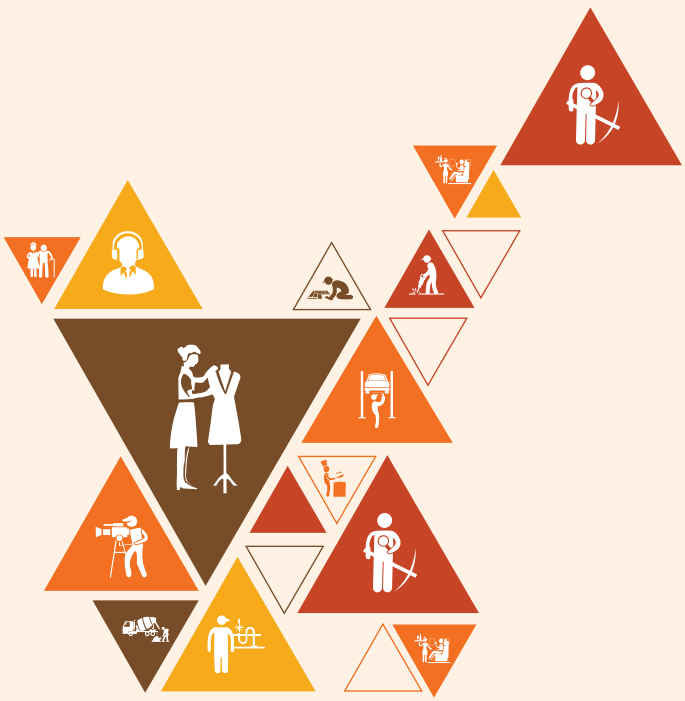
2. Prepare for production

Unit 2.1 - Production Planning process

Unit 2.2 - Equipment types and its use

Unit 2.3 - Cleaning and Maintenance



FIC/N9026

Key Learning Outcomes

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

- Discuss the standard practices to be followed for production
- Demonstrate the tasks to be performed at the workplace for planning the production

Unit 2.1 - Plan for Production

Unit Objectives

At the end of the session, the participants will be able to:

- Elucidate production planning process
- Discuss analysis and interpretation of various process charts, product flow charts, etc.
- Discuss the procedure to allot work or responsibility to the team.
- Explain the resource management process
- Calculate procedure to estimate manpower and raw material.
- Explain the capacity utilization calculation.

Resources to be Used

- Training kit (Trainer guide, Presentations),
- Whiteboard
- Marker
- Projector
- Laptop
- Presentation
- Cleaning machines
- Extruder
- Vegetable washer
- Vegetable peeler
- Pulveriser, fryer, roaster
- Blender
- Canning machineries blender
- Measurement Cane
- Weighing balance
- Timer
- Gas with Burner
- Knives
- Spatulas
- Packing wrap rolls
- Measuring cup and spoons
- Digital hygrometer
- Muslin Cloth
- Weighing Machine
- Milk Stirrer
- Thermometer
- Test Tube (Glass)
- Test Tube Holder

Do

- Quick recap of what have been taught in class in last chapter
- Take a mock quiz to know if the students are following you
- Use projector wherever necessary
- Use examples to make students understand the formulas given in chapter

Say

- A production plan defines the actions and tactics required to efficiently manufacture goods or services. It include defining the resources needed, creating timetables, and establishing quality and output goals.
- Potential hazards and contingencies should also be considered in the plan. Production planning ensures that resources are used efficiently, expenses are kept to a minimum, and production targets are met.
- It also assists businesses in streamlining their processes, improving communication and collaboration, and adapting to changes in demand or market conditions.
- A well-designed production plan can assist firms in increasing their competitiveness, improving customer happiness, and achieving long-term success.

Ask

- What is planning
- Define Production Planning

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Planning and Prioritizing Production Work
- Production Planning Analysis and Interpretation
- Prioritizing Workload
- Allocation of Work or Responsibility to the Team
- Significance of Resource Planning and Estimation
- Importance of Resource Planning
- Raw Material and Manpower Estimation
- Capacity Utilization

Elaborate

- Elucidate the Significance of production system with the help of (Fig.2.1 Schematic Production System), given in the Participant Handbook.
- Illustrate the Production Planning with the help of(Fig.2.2 Elements of Production Planning), given in the Participant Handbook.
- Describe the Prioritizing Workload with the help of(Fig.2.3 Significance of Prioritizing Production Workload), given in the Participant Handbook.
- Clarify the Allocation of Work or Responsibility to the Team with the help of(Fig.2.4 Criteria for the Work Allocation), given in the Participant Handbook.
- Clarify the Allocation of Work or Responsibility to the Team with the help of(Fig.2.5 Planning and allocation of work for Pickle and Paste Making Production), given in the Participant Handbook.
- Illustrate the Significance of Resource Planning and Estimation with the help of(Fig.2.6 Process of Resource Planning for Pickle and Paste Making Production), given in the Participant Handbook.
- Define the Raw Material and Manpower Estimation with the help of(Fig.2.7 Steps to Calculate Manpower Estimation for Production), given in the Participant Handbook.
- Illustrate the Capacity Utilization with the help of(Fig.2.8 Steps to calculate Capacity utilization), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of raw material and manpower estimation

Activity Description

- Divide the class into two groups or more, depending on the total number of participants.
- One of the groups has to come up with the ways how to calculate the raw material and manpower estimation
- Give them enough time to come up with a list of formula's on how to calculate the raw material and manpower estimation
- Ask the groups to choose one representative to present the list to the board.

Debrief

- Summarize the activity by asking the class questions like
  - What did we do in this activity
  - What did we learn from this activity

Unit 2.2 - Cleaning and Maintenance

Unit Objectives

At the end of the session, the participants will be able to:

- List down equipment type and its use

Resources to be Used

- Training kit (Trainer guide, Presentations),
- Whiteboard
- Marker
- Projector
- Laptop
- Presentation
- Cleaning machines
- Extruder
- Vegetable washer
- Vegetable peeler
- Pulveriser
- Fryer
- Roaster
- Blender
- Strainer
- Canning machineries blender
- Measurement Cane
- Weighing balance
- Timer
- Gas with Burner
- Knives
- Spatulas
- Packing wrap rolls
- Measuring cup and spoons
- Digital hygrometer
- Muslin Cloth
- Weighing Machine

Do

- Explain this unit with help of projector and MS PowerPoint for better understanding
- Encourage student to ask questions

Say

- Fruit pulp production equipment covers a number of machines that remove the pulp from fruit, such as fruit crushers, pulpers, and blenders. In the food business, these machines are often used to manufacture jams, jellies, juices, and other fruit-based goods. They are designed to handle big amounts of fruit quickly and effectively, making the pulp-producing process faster and easier.

Ask

- Where and for what fruit pulp can be used as a primary product
- What do they use in their homes to make fruit pulp at their homes

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Fruit-pulp processing Equipment and its uses

Elaborate

- Elucidate Fruit-pulp processing Equipment and its uses with the help of(Table. 2.1 Equipment and its uses), given in the Participant Handbook.

Activity

Brief

- Each group must demonstrate how to operate and maintain fruit pulping machines.

Activity Description

- Divide the class into two groups or more, depending on the total number of participants.
- Ask the groups to choose one representative to demonstrate how to operate and maintain fruit pulping machines to the board.

Debrief

- Summarize the activity by asking the class questions like
  - What did we do in this activity
  - What did we learn from this activity

Unit 2.3 - Cleaning and Maintenance

Unit Objectives

At the end of the session, the participants will be able to:

- Discuss the organizational policies and SOP on cleanliness
- List down the basic concept of food safety and hygiene
- Describe the operating procedure and general maintenance of food production machinery
- State waste management procedures
- List down the methods to inspect tools, equipment, and machinery

Resources to be Used

- Training kit (Trainer guide, Presentations),
- Whiteboard
- Marker
- Projector
- Laptop
- Presentation
- Cleaning machines
- Extruder
- Vegetable washer
- Vegetable peeler
- Pulveriser
- Fryer
- Roaster
- Blender
- Strainer
- Canning machineries blender
- Measurement Cane
- Weighing balance
- Timer
- Gas with Burner
- Knives, spatulas
- Packing wrap rolls
- Measuring cup and spoons
- Digital hygrometer
- Muslin Cloth
- Weighing Machine

Do

- Initiate a discussion in the class by asking questions like "Why do you think it is necessary to clean the work area"
- "How can we clean the entire work area"
- Get responses from the participants.
- Drawing from their responses, explain how the work area can be divided into food-contact surfaces and non-food conduct surfaces.
- Conduct a group activity to let participants respond about the various food contact and non-food contact surfaces.
- Discuss the common types of cleaning agents used in the industry.

Say

- The cleaning and sanitizing process are essential programs in the food processing industry. It has always been a critical element for ensuring food safety and quality. Food Processing industries must be spotlessly clean to ensure compliance with standard regulations and prevent contamination. Everything from random debris to flakes of rust and paint must be kept clear from foodstuff to ensure the product is entirely safe for consumption, so frequent cleaning is vital to Food Processing operations. However, the entire process is quite tricky because of the complexity of the machinery and equipment used in the Food Industry.

Ask

- What is the need for Cleaning and Sanitizing Work Area and Machinery?
- Name some Cleaning Equipment & Materials used in Work Area
- Give examples of some Cleaning Agents and Sanitizers Used for Cleaning
- State some Effective Practices for Sanitization and Cleaning

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What are the Standard Procedures on Cleanliness?
- What are the Types of Cleaning Equipment & Materials for the Work Area & Machinery?
- Types of Cleaning Equipment & Materials for Work Area & Machinery
- Cleaning agents and sanitizers are substances that are used to clean.
- Effective Practices for Sanitization and Cleaning
- Elaborate Maintenance and Check.
- Define Inspection Methods for Tools, Equipment, and Machinery

- Waste disposal
- What are the Standard Practices for Handling Hazards and Cleaning Work Area?

Elaborate

- Clarify the Effective Practices for Sanitization and Cleaning with the help of(Fig. 2.9: Standard hygiene Practices for Cleaning the work area and equipment), given in the Participant Handbook.
- Clarify the Effective Practices for Sanitization and Cleaning with the help of(Fig.2.10 Steps Of Cleaning In the Food Processing Industry), given in the Participant Handbook.
- Illustrate the Effective Practices for Sanitization and Cleaning with the help of(Fig. 2.12 Cleaning Work Area Categories), given in the Participant Handbook.
- Illustrate the Effective Practices for Sanitization and Cleaning with the help of(Fig. 2.11 Reasons for Cleaning and Sanitizing), given in the Participant Handbook.
- Illustrate the Cleaning equipment with the help of(Fig. 2.13 List of Equipment and Materials for Cleaning Work Area), given in the Participant Handbook.
- Illustrate the different range of detergents to be employed in varying and specific circumstances with the help of(Fig. Fig. 2.14 Various Ranges of Detergents), given in the Participant Handbook.
- Elucidate the three acceptable types of sanitizer solutions for use in the food processing industry with the help of(Fig. 2.15 List of Sanitizers for Work Area and Machineries), given in the Participant Handbook.
- Illustrate the Standard Practices for Cleaning Work Areas with the help of(Fig. 2.16 Standard Practices for Cleaning the work area and equipment), given in the Participant Handbook.
- Illustrate the Standard Practices for Cleaning Work Areas with the help of (Fig.2.17 Steps for Cleaning Work Area) , given in the Participant Handbook.
- Illustrate the Standard Practices for Cleaning of machinery with the help of (Fig.2.18 Cleaning Process for Fruit Pulp processing Machinery and Equipment) , given in the Participant Handbook.
- Explains the significance of reporting to the concerned authority, with help of flow chart (Fig.2.19 Importance of Reporting Faulty Tools and Equipment) , given in the Participant Handbook.
- Define the Maintenance and Check with the help of(Fig. 2.20: Maintenance Schedule Guidelines), given in the Participant Handbook.
- Illustrate the Maintenance and Check with the help of(Fig. 2.21: Maintenance Checklist), given in the Participant Handbook.
- Elucidate the Inspection Methods for Tools, Equipment, and Machinery with the help of(Fig. 2.22 : Inspection Checklists), given in the Participant Handbook.
- Illustrate the the concept of waste minimization with the help of(Fig. 2.23: Fig.2.23 Waste Minimization), given in the Participant Handbook.
- Illustrate the types of different dustbin with the help of(Fig 2.24 Dry &Wet Waste Bins), given in the Participant Handbook.

Activity

Brief

- Each group must develop food and non-food contact surfaces in a food processing unit.

Activity Description

- Divide the class into two groups or more, depending on the total number of participants.
- One of the groups has to come up with the food -contact surfaces in the work area. (You could give a hint like utensils)
- The other group has to come up with non-food contact surfaces in the work area. (You could give a hint like walls)
- Give them enough time to come up with a list.
- Ask the groups to choose one representative to present the list to the board.

Debrief

- Summarize the activity by asking the class questions like
  - What did we do in this activity
  - What did we learn from this activity

Notes

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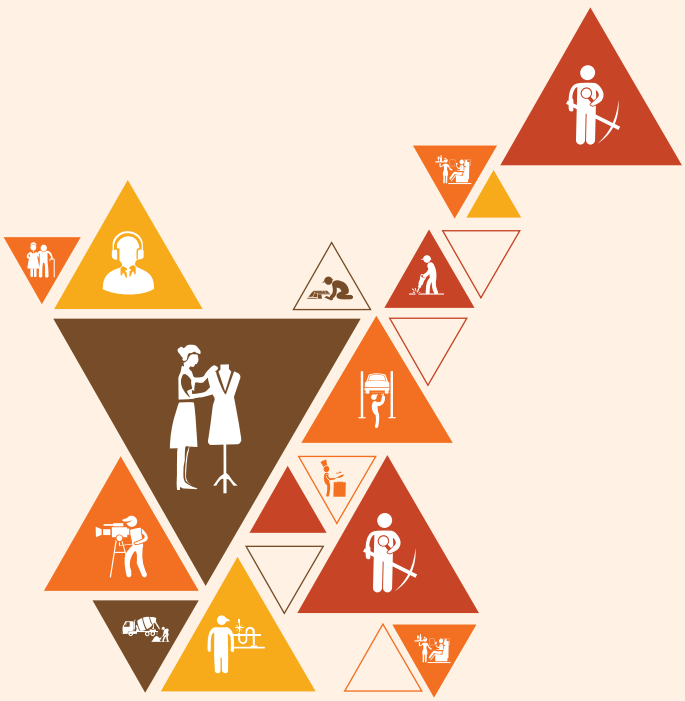
3. Wash and Sort the Fruits for Processing

Unit 3.1 - Wash and Sort Fruits



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Key Learning Outcomes

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

- Discuss the procedure to wash the fruits for fruit pulp processing
- Perform the tasks to inspect the washed fruits manually and sort them for fruit pulp processing

Unit 3.1 Washing and Sorting Fruits

Unit Objectives

At the end of the session, the participants will be able to:

- Discuss the significance and procedure of receiving and checking fruits from supplier or vendor for quality and quantity
- List the physical quality parameters of the fruits such as appearance, colour, texture, maturity, etc.
- Discuss the methods to monitor the temperature of fruits to be cooled to the required temperature
- Elaborate on the standard operating procedure of a ladder conveyor
- Explain the Standard Operating Procedure (SOP) to wash fruits to start the process
- Discuss the visual inspection procedure for manually washed fruits

Resources to be Used

- Computer,
- Projection Equipment,
- PowerPoint Presentation and software,
- Facilitator's Guide,
- Washing tank,
- Washing line conveyor,
- High-pressure spray,
- Participant's Handbook

Do

- Begin the class by recalling the learnings from previous classes
- Brief them what has been learned in the chapter so far
- Ask if they have any doubt
- Demonstrate the process of Wash, Sort and Dry the Fruits and Vegetables

Say

- Fruit washing and sorting is an important stage in the fruit pulp manufacturing business. It entails cleaning the fruits of dirt, debris, and other foreign matter to assure their safety and quality.
- The process usually starts with washing the fruits in clean water to remove any dirt or other impurities. Following washing, the fruits are sorted by size, color, ripeness, and quality. This ensures that only the best fruits are used to make fruit pulp, which is subsequently used to make juices, jams, and other fruit-based goods.
- Fruit must be washed and sorted properly to ensure the safety and quality of the final product.

Ask

- Why washing of fruits is necessary?
- What will happen if fruits are not properly washed before processing?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Receiving procedure
- Washing and Rinsing of Fruits With a High-Pressure Spraying System
- Transfer & Storage of Fruits to Approved Area with Ladder Belt Conveyor
- Visual inspection of fruits
- Identify Spoilage in Fruits and Vegetables
- Types of spoilage
- Storage Conditions for Fruits

Elaborate

- Elucidate the fruit receiving procedure with the help of(Fig 3.1 Fruit Receiving Process), given in the Participant Handbook.
- Describe the Wash, Sort & Dry the Fruits and Vegetables with the help of(Fig.3.2 Washing Fruits & Vegetables), given in the Participant Handbook.
- Clarify why is ladder belt conveyor is used to short dry fruits with the help of(Fig.3.3 Advantages of Ladder Belt Conveyor), given in the Participant Handbook.
- Clarify where ladder belt conveyor is used with the help of(Fig.3.4 Ladder Belt Conveyor application), given in the Participant Handbook.
- Explains the standard operating procedure of the ladder belt conveyor with the help of (Fig.3.5 Standard Operating Procedure for Ladder Belt Conveyor), given in the Participant Handbook.
- Define the parameters for Visual inspection of fruits in the sorting procedure with the help of (Fig.3.7 Workflow Process of Inspecting Fruits), given in the Participant Handbook.
- Illustrate the Drying Line and Sorting Line Conveyor with the help of (Fig.3.10 Impact of Sorting Line Conveyor), given in the Participant Handbook.
- Explain type of spoilage with help of (Fig. 3.9 Microbiological Spoilage in Fruits and Vegetable), given in the Participant Handbook.
- Clarify how spoilage is identified with help of (Fig. 3.10 Parameters to check Spoilage), given in the Participant Handbook.
- Explain uses of following equipment's with help of (Fig. 3.11 Hygrometer & Psychomotor) , given in the Participant Handbook.

Activity

Brief

- In this activity students are given fruits to practice washing and sorting fruits using different equipment and techniques.

Activity Description

- The class exercise can involve dividing the class into small groups, with each group given a different fruit to process.
- Students can then work together to wash and sort the fruit using equipment such as washing machines, brushes, and sorting conveyors.
- After the groups have completed the lab exercise, they can compare their results and discuss the advantages and disadvantages of different equipment and techniques.

Debrief

- This activity can help students understand the importance of washing and sorting fruits in the food processing industry and how to apply the principles in a practical setting.

Notes

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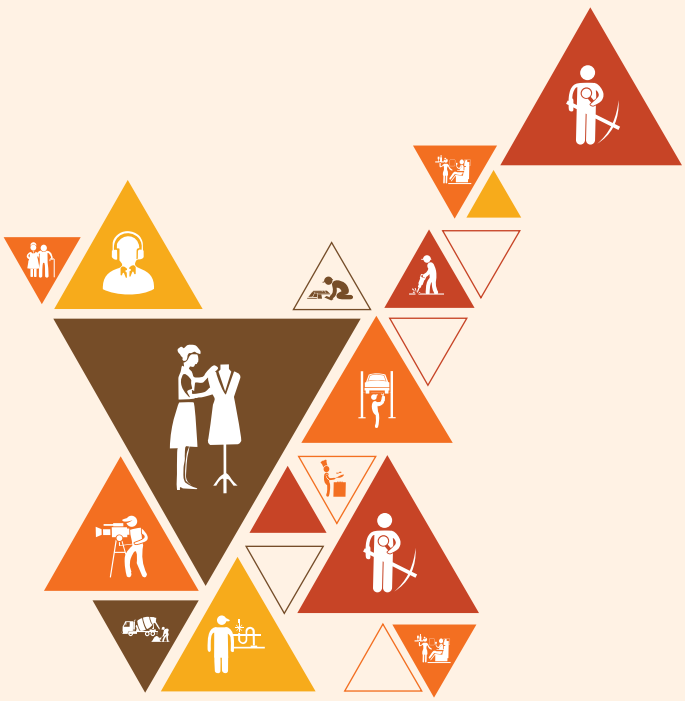
4. Peel, De-seed, and Destone the Fruits

Unit 4.1 - Peeling, Coring, and Slicing of fruits



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Key Learning Outcomes

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

- Perform the process to peel, de-seed, and cut the sorted fruits
- Describe the ways to dispose of the peeling material or core of the fruits

Unit 4.1 Peeling, Coring, and Slicing of fruits

Unit Objectives

At the end of the session, the participants will be able to:

- Elaborate on the standard operating procedure of the chopper/cutter/slicer machine
- Explain the process of peeling or core removal of the fruits
- State the significance of ensuring the removal of peel or core appropriately by monitoring the fruits emerging from the peeling or coring process
- Discuss the SOP to cut fruits manually and dispose of the waste

Resources to be Used

- Computer,
- Projection Equipment,
- PowerPoint Presentation and software,
- Peeler,
- Corer,
- Open spray system,
- Chopper,
- Slicer machine,
- Cutter,
- Facilitator's Guide,
- Participant's Handbook

Do

- Begin the class by recalling the learnings from previous classes
- Brief them what has been learned in the chapter so far
- Ask if they have any doubt
- Demonstrate the process of Wash, Sort and Dry the Fruits and Vegetables

Say

- Fruit peeling, coring, and slicing are critical steps in the fruit pulp manufacturing business.
- Peeling is the process of removing the fruit's outer coat, which is commonly the skin or rind.
- Coring is the process of removing the fruit's stem, seeds, and other rough components.
- Slicing is done to minimise the size of the fruit so that it may be processed more easily. These procedures must be followed to ensure that the fruit pulp is smooth and of good quality.
- The peeled, cored, and sliced fruits are then ground, blended, or pressed into pulp using various ways. Fruit peeling, coring, and slicing are critical steps in getting the appropriate texture and flavour of the finished product.

Ask

- Explain what will happen if fruit coring and slicing is not done before processing it?
- Why peeling of fruits necessary?
- What is coring?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Peeling
- Coring of Fruits
- Need of coring of fruit
- Process of Cutting and Slicing of Fruits

Elaborate

- Elucidate how to use hand peeler for peeling fruits with the help of(Fig. 4.1 Hand Peeling Tool), given in the Participant Handbook.
- Describe how to mechanical peeler is used for peeling fruits with the help of with the help of Fig. 4.2 Mechanical Peeling), given in the Participant Handbook.
- Explain the work-flow process of the peeling machine with the help of(Fig. 4.4 Peeling Machine Operation), given in the Participant Handbook.
- Explain how fruits are cut with the help of(Fig. 4.9 Cutting and Slicing of Fruits), given in the Participant Handbook.
- Explains the standard operating procedure of making fruits ready for processing with the help of (Fig. 4.10 Standard Practices for Manually Peeling, Coring and Cutting of Fruits), given in the Participant Handbook.
- Define standard operating procedure of the fruit cutter/slicing/chopping machine with the help of (Fig. 4.12 Standard Operating Procedure of Fruit Cutter/Slicer/Chopper Machine), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of fruits and the way it will become ready for making pulp

Activity Description

- Group the students into twos.
- Initiate a discussion within the class asking about the list of the fruits and the way they can be peeled
- Direct all participants about the different preparation different fruit needs
- Request each group to come with unique ideas for peeling and coring the fruits

Debrief

- Request the class questions like, "What did we do in this activity" to summaries the experience. What did this activity teach us

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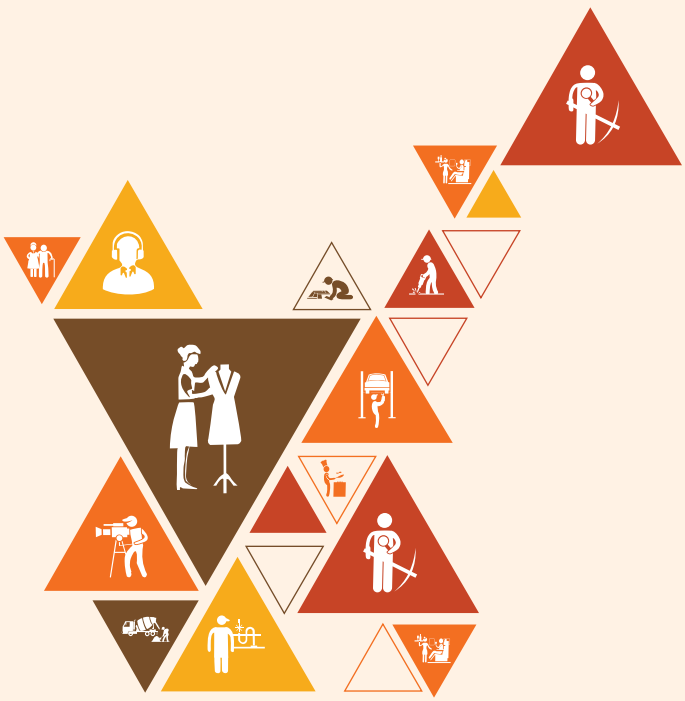
5. Fruit Pulp Extraction and Pre-cooking of the Pulp

Unit 5.1 - Fruit Pulp Extraction Process



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Key Learning Outcomes

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

- Discuss the tasks to be performed to extract the fruit pulp
- Perform the activities to pre-cook the extracted fruit pulp

Unit 5.1 - Fruit Pulp Extraction Process

Unit Objectives

At the end of the session, the participants will be able to:

- Discuss the fruit pulp extraction process
- State the importance of ensuring that collected pulp is free from seeds and fiber
- Discuss the standard procedure to replace damaged or clogged filter screen of pulper cum finisher/pulper refiner machine
- Discuss the methods to examine pre-cooked fruits pulp
- Explain the control parameters (Pressure, temperature, cooking time, stirrer speed, etc.) of cooking tank as per standards
- Describe the procedure to transfer the sample of the pulp to the quality lab as per standards

Resources to be Used

- Computer,
- Projection Equipment,
- PowerPoint Presentation and software,
- Collection tank,
- Steam jacketed kettle or Pre-cooking tank,
- De-aeration tank,
- Evaporator
- Facilitator's Guide,
- Participant's Handbook

Do

- Begin the class by recalling the learnings from previous classes
- Brief them what has been learned in the chapter so far
- Ask if they have any doubt
- Start a discussion on the process to make fruit pulp extraction

Say

- The extraction of fruit pulp is a critical stage in the fruit pulp manufacturing business. The juice and pulp are separated from the fruit's solid components, which include seeds, skins, and fibres.
- The fruits are often washed and sorted before being mechanically extracted, where they are crushed and pressed to produce the juice and pulp.
- Before being pasteurised and packaged, the extracted pulp is screened and processed to remove any contaminants. The resulting fruit pulp can be used to make jams, jellies, sauces, and beverages, among other things.
- The extraction process's efficiency and quality are important to the overall performance of the fruit pulp manufacturing sector.

Ask

- What should be done to make fruits ready for extraction of pulp?
- What precautions should be taken while working on machine?
- Why lab analysis of fruit pulp sample is important before packing?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Fruit-Pulp Extraction
- Fruit Pulper Machine
- Standard procedure to replace damaged or clogged filter screen of pulper machine
- Pre cook the fruit pulp
- Lab Analysis for Sample Check of Fruit Pulp
- What is Refractometer ?
- Uses and advantages of refractometer?

Elaborate

- Explain the steps used for fruit pulp extraction with the help of(Fig.5.1 Fruit Pulp Extraction), given in the Participant Handbook.
- Explain the use of de-aeration tank and concentration tank with the help of [Fig.5.2 De-aeration Tank (left) & Concentration Tank(right)], given in the Participant Handbook.
- Explain the fruit pulp machine with the help of(Fig.5.3 Parts of Fruit Pulper Machine , Fig.5.4 Fruit Pulper Machine), given in the Participant Handbook.
- Explains the standard operating procedure of extracting the fruit pulp using a fruit pulper machine with the help of(Fig.5.5 Process Flow of Fruit Pulper Machine), given in the Participant Handbook.
- Explain different parts of steam jacket kettle with the help of (Fig.5.6 Parts of Steam Jacket Kettle), given in the Participant Handbook.
- Explains the cooking operation of pre-cooked pulp in a steam jacket kettle with help of (Fig.5.8 Process Flow of Pre-cooked Pulp in Steam Jacket Kettle), given in the Participant Handbook.
- Explain about pH scale with help of (Fig.5.9 pH Scale), given in the Participant Handbook.
- Explain students about how refractometer is used and for what it is used wih help of (Fig.5.10 Refractometer), given in the Participant Handbook.

Activity

Brief

- Conduct a demonstration of the extraction process using a fruit pulping machine

Activity Description

- The demonstration can involve the instructor showing students the different parts of the machine, how it works, and the steps involved in the extraction process.

Students can then observe the process and ask questions to clarify their understanding.

- After the demonstration, the instructor can facilitate a discussion on the factors that affect the quality of fruit pulp, such as the type of fruit, the ripeness of the fruit, and the extraction method used

Debrief

- This activity can help students understand the importance of selecting the right fruit for the process, as well as the impact of different extraction methods on the quality of the final product.

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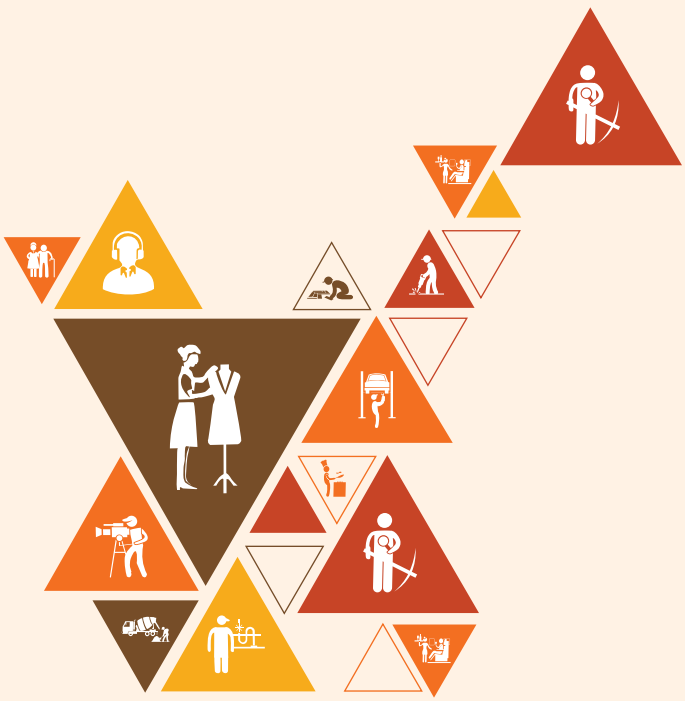
6. Aseptic Sterilization and Packing of Fruit Pulp

Unit 6.1 Aseptic Sterilization Process of Fruit Pulp



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Key Learning Outcomes

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

- Discuss the procedure of aseptic sterilization of the fruit pulp
- Perform the activities to pack and send the fruit pulp to the storage area

Unit 6.1 - Aseptic Sterilization Process of Fruit Pulp

Unit Objectives

At the end of the session, the participants will be able to:

- Discuss the control parameters (such as temperature, pressure, time, etc.) of the sterilizer to be maintained for sterilizing the fruit pulp
- Describe the procedure to monitor and maintain steam pressure
- State the significance of maintaining the temperature of the product surge tank until the marked filling level
- Discuss the operating procedure of aseptic packaging machineries, aseptic packaging process, and relevant parameters
- Explain the SOP for sending the filled aseptic bags to the storage area, and storing raw materials, and packaging material

Resources to be Used

- Computer,
- Projection Equipment,
- PowerPoint Presentation and software,
- Sterilization tank,
- Product surge tank,
- Plastic liners,
- Drums,
- Cartons,
- Aseptic bag,
- Facilitator's Guide,
- Participant's Handbook

Do

- Begin the class by recalling the learnings from previous classes
- Brief them what has been learned in the chapter so far
- Ask if they have any doubt
- Take a pop up quiz to check their learning
- Start a debate on Aseptic sterilization process

Say

- For preserving fruit pulp, aseptic sterilisation and packing is a frequently used technology in the food processing sector. The fruit pulp is sterilised using heat treatment before being packaged in a sterile container under aseptic conditions to prevent contamination. This method preserves the natural

flavor, aroma, and colour of the fruit pulp while increasing its shelf life. Because aseptic sterilisation and packing preserve the nutritional value of the fruit pulp, it is a preferred solution for the food and beverage industries.

Ask

- Why is aseptic sterilization important?
- Give some examples where sterilization is used ?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Aseptic Sterilization
- Aseptic Sterilizer and Filler Operation
- Features of the aseptic sterilizer
- Operation procedure of an aseptic filler machine.

Elaborate

- Explain the process of fruit pulp sterilization with the help of Fig. 6.1 Stages of Fruit-pulp Sterilization Process), given in the Participant Handbook.
- Explain the main parameters that influence the sterilization process of a fruit pulp with the help of [Fig. 6.2 Parameters of Asceptic Sterilization Process], given in the Participant Handbook.
- Explain the standard operating procedure for sterilizing the fruit pulp using an asceptic sterlizer machine with the help of(Fig. 6.4 Workflow Process of Aseptic Sterilizer Machine), given in the Participant Handbook.
- Explains the standard operating procedure for filling the fruit pulp in aseptic bags using an aseptic filler machine with the help of (Fig. 6.7 Workflow Process of Aseptic Filler Machine), given in the Participant Handbook.

Activity

Brief

- Each group must how to properly sterilize the equipment and packaging materials to ensure the safety and quality of the final product.

Activity Description

- Group the students into twos.
- Ask the students to demonstrate following steps for the activity:
  - Gather materials
  - Demonstrate or explain the aseptic sterilization process
  - Sterilize the equipment and packaging materials
  - Prepare the fruit pulp
  - Package the fruit pulp
  - Store and test the fruit pulp

Debrief

- Request the class questions like, "What did we do in this activity" to summaries the experience. What did this activity teach us

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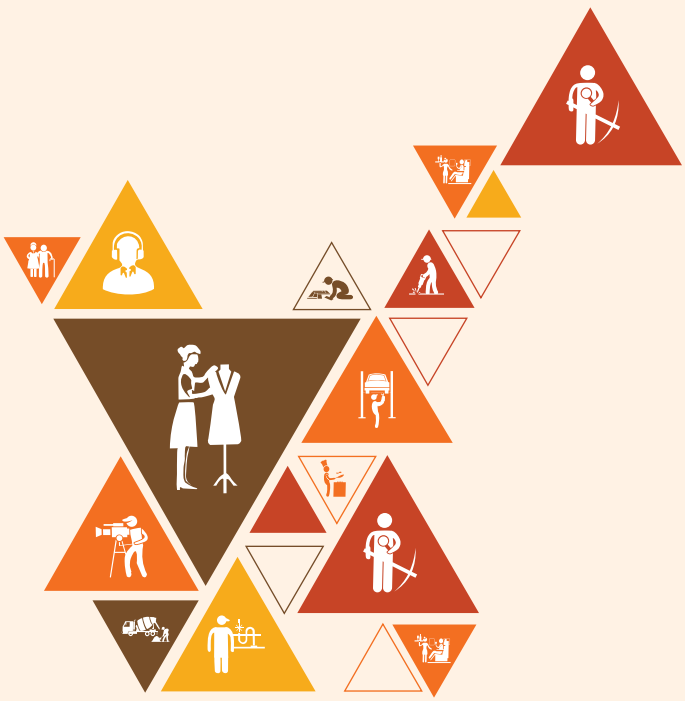
7. Can the Fruit Pulp

Unit 7.1 - Fruit Pulp Canning Process



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Key Learning Outcomes

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

- Discuss the procedure to can the fruit pulp
- Perform the tasks to report the discrepancy, if any

Unit 7.1 - Fruit Pulp Canning Process

Unit Objectives

At the end of the session, the participants will be able to:

- Discuss the canning process of the fruit pulp and the parameters to be considered for the process
- Discuss the operating procedure of canning machinery
- Describe the procedure to fill pulp into the cans
- Discuss the procedure to place a lid over the filled cans with a sealing machine or manually
- Discuss various types of packaging materials, and packaging machinery for fruit pulp
- Discuss standard quality parameters, basic food microbiology, and quality assessment of the fruit pulp based on physical parameters
- Discuss the SOP on storing finished goods
- State the importance of taking the canned fruit pulp samples for quality lab for analysis
- Outline the scope of various standards as well as FSSAI laws and regulations on product, packaging, and labelling

Resources to be Used

- Computer,
- Projection Equipment,
- PowerPoint Presentation and software
- Reformer,
- Flanger,
- Seamer,
- Can body bearer, and Embossing machines,
- Machine-lift,
- Mechanical conveyor,
- Packaging machine,
- Facilitator's Guide,
- Participant's Handbook

Do

- Begin the class by recalling the learnings from previous classes
- Brief them what has been learned in the chapter so far
- Ask if they have any doubt
- Take an oral quiz

Say

- Fruit pulp canning is a popular method for preserving fruits over time. Selecting and preparing the fruits, heating the pulp to kill microorganisms, pouring the sterilised pulp into cans, closing the cans, and sterilising them to assure preservation are all part of the process. The high heat treatment also aids in the breakdown of enzymes that may cause spoiling, resulting in a longer shelf life for the fruit pulp. Consumers will find canned fruit pulp to be a practical alternative because it can be stored at room temperature. The technique preserves the nutritional value and flavour of the fruits while making them available all year.

Ask

- What is Fruit canning ?
- What are the canned food they have tried ?
- Laws and Regulations governs processed food ?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Fruit canning process
- Canning Machinery and Equipment
- Canning Machine Operation
- Types of Packaging Materials
- Microbial Analysis of Canned Food
- FSSAI Laws and Regulations on Product, Packaging, And Labelling

Elaborate

- Explain the adv. Canning fruit pulp with the help of(Fig 7.1 Advantages of Canning Fruit- pulp), given in the Participant Handbook.
- Explain the factors that affect the processing time in the canning process with the help of [Fig. 7.2 Factors Affecting the Canning Processing Time], given in the Participant Handbook.
- Explain the type of canning methods with the help of(Fig. 7.3 Methods of Canning Process), given in the Participant Handbook.
- Explains the canning equipment's with the help of(Table 7.1 Types of Canning Equipment), given in the Participant Handbook.(Facilitator can also use projector and internet to show more about the topic for better understanding)
- Explain different parts of steam jacket kettle with the help of (Fig. 7.4 Water Bath Canner), given in the Participant Handbook.

- Explains the canner method with help of (Fig. 7.5 Boiling Water Bath Method), given in the Participant Handbook.
- Explain canner method with help of (Fig. 7.7 Pressure Canner Method), given in the Participant Handbook.
- Explain students about packing material is used and for what it is used with help of (Fig. 7.8 Types of Packaging Material for Canning Process), given in the Participant Handbook.
- Explain the parameters for checking spoilage in canned products wih help of (Fig. 7.9 Types of Spoilage in Sample Cans), given in the Participant Handbook
- Explain the FSSAI standards with help of [Fig. 7.10 FSSAI Standards (Food Products Standards and Food Additives) Regulations] given in the Participant Handbook

Activity

Brief

- Provide a case study of a real-life situation where fruit pulp canning process was done incorrectly, resulting in quality issues or safety concerns.

Activity Description

- Students can then work in groups to analyse the situation
- Develop a plan to prevent similar issues in the future.
- Write a list of observation in a sheet of paper and discuss observation with rest of class

Debrief

- This activity can help students apply their knowledge of fruit pulp canning process in a practical setting and develop problem-solving skills.

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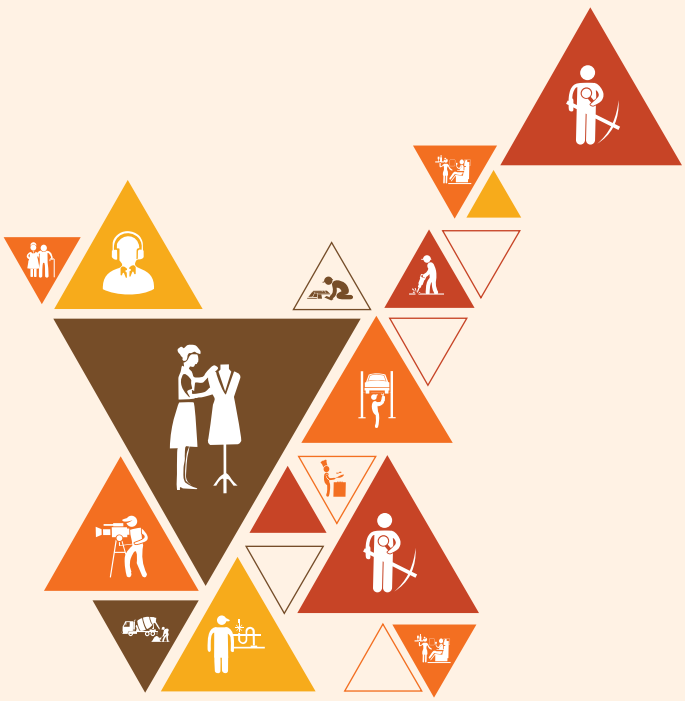
8. Ensuring Food Safety and Personal Hygiene

Unit 8.1 - Introduction to Food Safety
Unit 8.2 - Schedule IV requirements of FSSAI
Unit 8.3 - Personal Hygiene
Unit 8.4 - Health Safety



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Key Learning Outcomes

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

- Identify the hazards, types of hazards (Physical, chemical, biological and Allergenic) and risks at workplace
- HACCP, TACCP, VACCP, Control measures, CCP, Critical limit
- Explain the preventions of product contamination
- Discuss the factors affecting food spoilage and food storage techniques
- Describe Schedule IV requirements of FSSAI
- Discuss cleaning and sanitization process, needs and importance and storage of sanitizing materials
- Discuss health and safety policies and procedures
- Discuss Employee health do's and don'ts, Food borne illness and preventive health check-ups

Unit 8.1 - Introduction to Food Safety

Unit Objectives

At the end of the session, the participants will be able to:

- Identify types of hazards and risks at workplace

Resources to be Used

- Training kit (Trainer guide, Presentations),
- Whiteboard,
- Marker,
- MS PowerPoints
- Projector,
- Laptop,
- PPEs
- Presentation
- Participant Handbook

Do

- Initiate discussion on the food safety in the class , let all student speak their mind
- Write important points said in discussion on board
- See to it that discussion stay at the topic

Say

- Food safety refers to the policies and procedures in place to assure the quality and safety of food items from farm to fork. It includes a variety of activities such as food harvesting, processing, packaging, transportation, storage, and preparation to reduce the danger of contamination and spoiling, which can result in foodborne illnesses.
- Food safety is critical for preserving public health, maintaining customer confidence, and ensuring the safety and quality of the food supply. To design and implement food safety norms and guidelines, various regulatory agencies and standards exist. The Food and Drug Administration (FDA), the World Health Organization (WHO), and the International Food Safety Authorities Network (INFOSAN) are among these organizations.

Ask

- What is food allergens?
- How cooked food is stored in their homes?
- State the importance of food safety?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Food safety
- Food safety hazard and risk
- Types of hazards
- What Are the Signs & Symptoms of a Food Allergy?
- Contamination, Cross Contamination and Prevention
- Importance of Storing Food at Specified Temperature
- Proper Transportation of food
- HACCP, TACCP, VACCP, Control Measures, Critical Control Point, Critical Limit

Elaborate

- Explain about microbiological hazard with the help of (Fig. 8.1: Microbiological Hazards), given in the Participant Handbook. (Use projector to show them a video on the given topic for better understanding)
- Describe the food safety with the help of (Fig. 8.3: FATTOM Food Safety), given in the Participant Handbook. (Use power point to explain topic in detail)

Activity

Brief

- Each group must develop a list of reason why it is important to have proper storage in food safety

Activity Description

- Divide the class into two groups or more, depending on the total number of participants.
- One of the groups has to come up with develop a list of role proper storage in food safety
- Ask the groups to choose one representative to present the list to the board and explain it to whole class.

Debrief

- Summarize the activity by asking the class questions like
  - What did we do in this activity
  - What did we learn from this activity

Unit 8.2 - Schedule IV Requirements of FSSAI

Unit Objectives

At the end of the session, the participants will be able to:

- Identify requirements in Schedule IV in FSSAI

Resources to be Used

- Training kit (Trainer guide, Presentations),
- Whiteboard,
- Marker,
- MS PowerPoints
- Projector,
- Laptop,
- PPEs
- Presentation
- Participant Handbook

Do

- Initiate discussion on the role of FSSAI on food processing industry
- What comes under Workplace ethics?
- What is grievance management?

Say

- A technician is in charge of carrying out technical duties relating to the setup, upkeep, and repair of machinery, systems, and other equipment. They must be very knowledgeable about the technology they use, be able to solve problems, and adhere to safety procedures.

Ask

- Why is Cleaning and Sanitizing Work Area and Machinery important?
- State the types of Cleaning Equipment & Materials for Work Area & Machinery?
- What are the different5 Inspection Methods for Tools, Equipment, and Machinery?
- Standard Practices for Handling Hazards and Cleaning Work Area
- Give examples of some Important work place ethics?
- Give examples of few Types of workplace grievances?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Schedule IV Requirements of FSSAI
- Food Processing / Preparation, Packaging and Distribution / Service
- Where and How to Store Your Cleaning Supplies

Elaborate

- Elucidate the parts of GMP and GHP with the help of(Table 8.2.1: Five Parts of Good Manufacturing Practices (GMP) and Good Hygiene Practices (GHP)), given in the Participant Handbook.
- Describe the different workplace ethics factors of layout and design with the help of(Fig. 8.8: Layout and Design factors), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of various parts of Good Hygiene Practices

Activity Description

- Divide the class into two groups or more, depending on the total number of participants.
- One of the groups has to come up with the ways to explain parts of good hygiene practices team member which other team member has made with help of an act
- Ask the groups to choose one representative to present the list to the board.

Debrief

- Summarize the activity by asking the class questions like
  - What did we do in this activity
  - What did we learn from this activity

Unit 8.3 - Personal Hygiene

Unit Objectives

At the end of the session, the participants will be able to:

- Identify types of health and safety policies and procedures

Resources to be Used

- Training kit (Trainer guide, Presentations),
- Whiteboard,
- Marker,
- MS PowerPoints
- Projector,
- Laptop, Gloves,
- Hair net,
- Shoe cover,
- Soap dispenser,
- Hand sanitizer,
- Ear plugs,
- Masks,
- Aprons/lab coats eye protection,
- Hard hats,
- Gloves, rubber boots,
- Presentation
- Participant Handbook

Do

- Initiate a discussion in the class by asking questions like "Why do you think it is necessary to personal hygiene "
- Get responses from the participants.
- Drawing from their responses, explain how the personal hygiene help in maintaining a good health
- Show them how hand is washed properly

Say

- Personal hygiene is the term used to describe the routines and actions people take to keep themselves clean and support good health. It involves chores like taking a shower or a bath, brushing your teeth, cleaning your hands, and maintaining your hair and nails.
- Personal hygiene is crucial because it lowers the risk of illnesses and diseases, stops the transmission of germs and bacteria, and enhances general health and wellbeing.

- Personal hygiene is important in both social and professional contexts since it is frequently seen as a measure of a person's moral character and level of regard for others. People can encourage excellent health and preserve a positive self-image by incorporating appropriate personal hygiene practises into everyday routines.

Ask

- What comes under personal hygiene?
- State the Importance of hygiene for food processing technician?
- What precaution do their mother take while cooking food for them at home?
- What type of sanitizer are most effective for sanitizing hands?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What is Personal hygiene
- How personal hygiene is maintained
- Importance of washing hands and when and how hands should be washed ?

Elaborate

- Elucidate the personal hygiene with the help of (Fig.8.26: Personal hygiene), given in the Participant Handbook.
- Describe the Proper hand washing for any food safety system with the help of (Fig. 8.27: Methods of washing hand), given in the Participant Handbook(Manually show them proper way washing hands)
- Elucidate how to Use Sanitizer with the help of(Fig. 8.28 : Usage of Sanitizer), given in the Participant Handbook.(Either use projector or practically show them how to use sanitizer)
- Illustrate when to Wash and Sanitize Hand with the help of (Fig. 8.29: Times to wash and sanitize hand), given in the Participant Handbook

Activity

Brief

- Conduct a role-playing exercise where students act out scenarios related to personal hygiene in a food processing plant..

Activity Description

- Divide the class into two groups or more, depending on the total number of participants.
- Each group given a different scenario to act out. For example, a scenario can involve a worker forgetting to wash their hands before handling food, or a worker failing to wear appropriate personal protective equipment such as gloves and hairnets.
- After the groups have completed their role-playing exercise, they can discuss the scenario and identify what went wrong and how it could have been prevented.
- This activity help students understand the importance of personal hygiene in the food processing industry and the impact of improper hygiene on food safety and quality.

Debrief

- Summarize the activity by asking the class questions like
  - What did we do in this activity
  - What did we learn from this activity

Unit 8.4 - Health Safety

Unit Objectives

At the end of the session, the participants will be able to:

- Illustrate the concept of health safety
- Understand the hazards of health safety
- Explain the health and safety policies and procedures
- Describe the personal protective equipment
- Discuss the types of personal protective equipment

Resources to be Used

- Training kit (Trainer guide, Presentations),
- Whiteboard,
- Marker,
- Projector,
- Laptop,
- Hair net,
- Shoe cover,
- Soap dispenser,
- Hand sanitizer,
- Ear plugs,
- Masks,
- Aprons/lab coats eye protection,
- Hard hats,
- Gloves, rubber boots,
- Presentation
- Participant Handbook

Do

- Recap all teach ad in this chapter this far
- Take oral pop up quiz to test their knowledge
- Ask them what they do in their daily life to remain healthy .(Example Doing yoga , eating right , running etc.)

Say

- Health safety refers to the precautions taken to guarantee individuals' physical and mental well-being in a variety of situations, such as workplaces, schools, and public areas. It entails recognizing

and assessing potential health risks, putting appropriate preventative measures in place, and responding quickly to emergencies. Proper hygiene, vaccination, the use of personal protective equipment, regular health exams, and disaster readiness planning are all examples of health safety practices.

- Health safety is critical for creating a healthy environment and preventing illness spread. It is a shared responsibility that necessitates the collaboration of individuals, organizations, and governments to ensure everyone's well-being.

Ask

- What is a hazard
- What is a PPE
- Are they vaccinated against Covid 19 , if yes why ?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Health and Safety
- Health Safety Hazard
- Health and Safety Policies and Procedures
- What is Personal Protective Equipment?
- Different Types of PPE
- Importance of Preventive Health Check-up's

Elaborate

- Explain how food handler work with the help of (Fig. 8.34: FSSAI dos and don'ts for food handlers), given in the Participant Handbook.
- Explain more about health check up with the help of (Fig. 8.35: Format for health checkup), given in the Participant Handbook.

Activity

Brief

- Conduct a mock safety inspection of a food processing plant.

Activity Description

- Divide the class into two groups or more, depending on the total number of participants.
- Each group assigned a different area of the plant to inspect for compliance with safety regulations and best practices.
- Students can then conduct a thorough inspection of the area, identify any safety hazards or potential violations, and document their findings in a safety report.
- After the groups have completed their safety inspection, they can present their findings to the class and discuss strategies for addressing the identified safety hazards and preventing future safety violations.

Debrief

- Summarize the activity by asking the class questions like
  - What did we do in this activity
  - What did we learn from this activity

Notes

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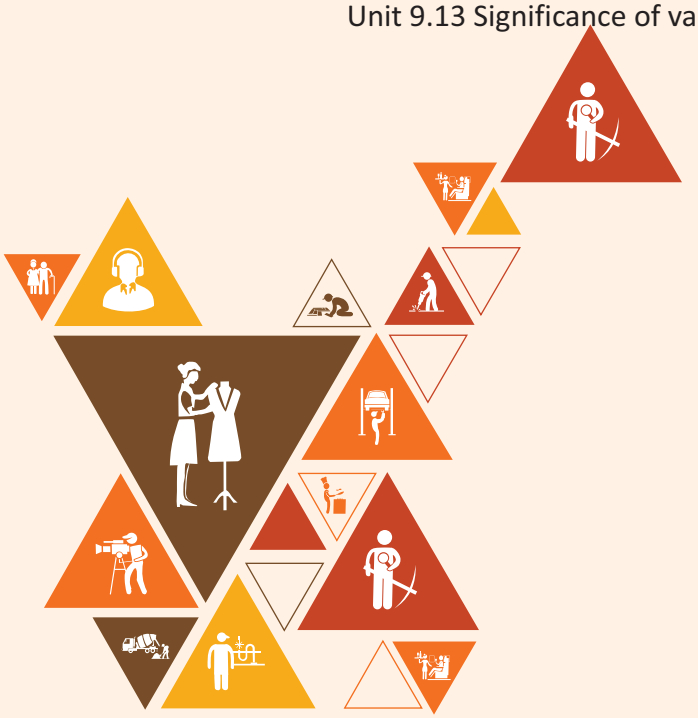
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
RE IMAGINE FUTURE

FICSI
Food Industry Capacity and Skill Initiative

9. Managing Accidents and Emergencies

Unit 9.1 Hazard, Risk and Accidents
Unit 9.2 Standard Practices and Precautions
Unit 9.3 Uses of Electrical Equipment
Unit 9.4 Usage of Personal Protective Equipment
Unit 9.5 Organisational Protocols
Unit 9.6 Dealing with Toxics
Unit 9.7 Fire Prevention and Fire Extinguishers
Unit 9.8 Artificial Respiration and CPR
Unit 9.9 Rescue and Evacuation In Case Of Fire
Unit 9.10 First Aid
Unit 9.11 Potential Injuries and Ill Health
Unit 9.12 Precautions in Mobility
Unit 9.13 Significance of various types of hazard and safety signs



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Key Learning Outcomes

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

- Recognize the types of hazards, risks as well as accidents
- Categorize the standard precautions and practices
- Examine the utilization of the electrical equipment
- Explore the usage of personal protective equipment
- Recognize the organizational protocols
- Monitor the ways to handle the toxics
- Identify fire prevention and fire extinguisher
- Evaluate CPR as well as the artificial respiration
- Discuss the evacuation and rescue
- Catalogue the first aids
- Understand the ill health as well as potential injuries
- Demonstrate the precautions in mobility
- Discuss the significance of various types of hazard and safety signs

Unit 9.1 - Hazard, Risk and Accidents

Unit Objectives

At the end of the session, the participants will be able to:

- Identify the types of hazards, risks as well as accidents

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Explain the types of hazards, risks as well as accidents.
- Discuss the Hazard Identification and risk assessment

Say

- There are different types of hazards
  - Safety hazard
  - Chemical hazards
  - Biological hazards
  - Physical hazard
  - Ergonomic hazard
  - Work organization hazards

Ask

- Workplace hazards
- What do you mean by risk assessment?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What are workplace hazards?

Elaborate

- Elucidate the Sources of different types of hazards with the help of (figure 9.1.2), given in the participant handbook

Activity

Brief

- Each group must develop a list of workplace hazards.

Activity Description

- Group the students into a group of three.
- List down the workplace hazards

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 9.2 - Standard Practices and Precautions

Unit Objectives

At the end of the session, the participants will be able to:

- Categorize the standard precautions and practices

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Describe the standard practices and precautions in managing Risks and accidents.

Say

- There are certain ways in standard precautions and practices:
  - Hand hygiene
  - Usage of personal protective equipment
  - Respiratory hygiene/ Cough Etiquette
  - Sharp Safety
  - Safe injection practices
  - Sterile instruments and devices
  - Avoiding ergonomic hazard

Ask

- What do you mean by standard precautions and practices ?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Standard precautions and practices

Elaborate

- Describe the standard precautions and practices

Activity

Brief

- Conduct mock bakery safety inspection.

Activity Description

- Divide the group into teams of three or four people, with each team being responsible for inspecting a different area of the bakery (e.g., the mixing and prep area, the oven area, the packaging area, etc.).
- Provide each team with a checklist of safety standards and precautions that they need to look for during the inspection. This could include things like proper use of personal protective equipment (PPE), correct storage of ingredients and equipment, appropriate handling of raw materials, and effective cleaning and sanitation practices.
- Allow each team a set amount of time (e.g., 30 minutes) to conduct their inspection and take notes on any issues they observe.
- Once the inspection is complete, have each team present their findings to the rest of the group. This could involve highlighting areas of concern, identifying good practices that they observed, and making recommendations for improvement.
- As a group, discuss the findings and work together to develop an action plan for addressing any issues that were identified. This could involve assigning specific tasks to team members, setting deadlines for implementation, and discussing ways to monitor progress and maintain ongoing safety standards.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 9.3 - Uses of Electrical Equipment

Unit Objectives

At the end of the session, the participants will be able to:

- Examine the utilization of the electrical equipment

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Discuss the utilization of the electrical equipment.

Say

- There are different types of electrical equipment

Ask

- What do you mean by electrical equipment?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What is the utilization of the electrical equipment?

Elaborate

- Elucidate the different types of electrical equipment with the help of (figure 9.3.1), given in the participant handbook.
- Elucidate the electrical hazard symbols with the help of (figure 9.3.2), given in the participant handbook.

Activity

Brief

- Each group must develop a list of types of electrical equipment used in food processing plant.

Activity Description

- Group the students into a group of four.
- List down the different types of electrical equipment.

Debrief

- To summarise the event, pose questions to the class like, "What did we do in this activity?" What lesson did this exercise give us?

Unit 9.4 - Usage of Personal Protective Equipment

Unit Objectives

At the end of the session, the participants will be able to:

- Explore the usage of personal protective equipment

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide
- Hairnets or hats
- Aprons or smocks
- Disposable or reusable gloves
- Safety glasses or goggles
- Slip-resistant shoes

Do

- Discuss the usage of personal protective equipment.
- Tell them about the importance of PPE in food industry.

Say

- Personal Protective Equipment is any device or clothing worn by a worker to control the level of risk that when the worker when exposed to:
  - Dangerous goods, hazardous chemicals, infectious substances
  - Dust, fumes or particles
  - Radiation (ionizing and non-ionizing), ultraviolet or solar radiation
  - Noise
  - Moving objects such as vehicles, trolleys and forklifts
  - Flying objects when using machinery with moving parts
  - Environmental factors, for example, high and low temperature

Ask

- Personal protective equipment?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What is the use of Personal protective equipment?

Elaborate

- Elucidate the usage of Personal protective equipment with the help of (figure 9.4.1), given in the participant handbook

Activity

Brief

- Each group must demonstrate the use of various types of personal protective equipment.

Activity Description

- Group the students into a group of four.
- Demonstrate the use of PPE (Personal Protective Equipment) in various circumstances .

Debrief

- To summarise the event, pose questions to the class like, "What did we do in this activity?" What lesson did this exercise give us?

Unit 9.5 - Organisational Protocols

Unit Objectives

At the end of the session, the participants will be able to:

- Recognizing the organizational protocols

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Recall the organizational protocols.

Say

- Explain the organizational protocols

Ask

- What do you mean by organizational protocols?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- List the different ways to organizational protocols.

Elaborate

- Discuss the organizational protocols

Activity

Brief

- Each group must develop a list of organizational protocols.

Activity Description

- Group the students into a group of four.
- Organizational protocols.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 9.6 - Dealing with Toxics

Unit Objectives

At the end of the session, the participants will be able to:

- Monitor the ways to handle the toxics

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Explain the ways to handle the toxics.

Say

- There are various ways to handle the toxins.

Ask

- What is the Storage requirement?
- What do you mean by Labelling requirement?
- What is the Spill and accident procedures?
- What do you mean by Waste management?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain the Waste disposal process for a different type of waste

Elaborate

- Elucidate the Waste disposal process for a different type of waste with the help of (figure 9.6.1), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of various ways to handle the toxics.

Activity Description

- Group the students into a group of four.
- List the different ways to handle the toxics.
- List the different types of waste.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 9.7 - Fire Prevention and Fire Extinguishers

Unit Objectives

At the end of the session, the participants will be able to:

- Identify fire prevention and fire extinguishers

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Describe the fire prevention and fire extinguisher.
- Explain the uses of fire extinguisher

Say

- A fire extinguisher is an active instrument that helps control small emergency fires. It can't be used for the huge fire which is out of control. Such fires are controlled with the help of a fire brigade.
- It is very important to safely vacate the persons from a building set on fire in the minimum amount of me from the safest path. This path needs to be the shortest possible and easily passable. It should be in proper condition so that it can be used in an emergency to evacuate the entrapped person in a building.

Ask

- What is the fire prevention and fire extinguisher?
- Different types of fire extinguisher.

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What do you mean by fire extinguisher.
- How many types of fire extinguishers are there?

Elaborate

- Explain the types of fire extinguisher with the help of (figure 9.7.1), given in the Participant Handbook.
- Elucidate the Pass technique for fire extinguisher with the help of (figure 9.7.2), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of uses of fire extinguisher.

Activity Description

- Group the students into a group of four.
- List the categories of different types of fire evacuation.
- Now categories them into which extinguisher can be used at what level of fire

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 9.8 - Artificial Respiration and CPR

Unit Objectives

At the end of the session, the participants will be able to:

- Evaluate CPR as well as the artificial respiration

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Describe the Evaluate CPR as well as the artificial respiration.
- Explain artificial respiration and CPR.

Say

- There are the two types of ways to provide artificial respiration.
  - Manual
  - Mechanical

Ask

- What is the artificial respiration?
- What is CPR?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What do you mean by artificial respiration.

Elaborate

- Elucidate the CPR steps with the help of (table 9.8.1), given in the Participant Handbook.
- Elucidate the back pressure Aam-lift with the help of (Fig 9.8.1), given in the Participant Handbook.

- Elucidate the big valve mask with the help of (Fig 9.8.2), given in the Participant Handbook.
- Elucidate the Ventilator with the help of (Fig 9.8.3), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of different types of fire evacuation.

Activity Description

- Group the students into a group of four.
- List the categories of different types of fire evacuation.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 9.9 - Rescue and Evacuation In Case Of Fire

Unit Objectives

At the end of the session, the participants will be able to:

- Discuss the evacuation and rescue during a fire incident

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Discuss the evacuation and rescue during a fire incident.

Say

- "Fire Emergency Evacuation Plan (FEEP)" stands a scripted document that involves the activity to be adapted by all staff in the event of a fire and the sequences for calling the fire brigade.

Ask

- Explain the evacuation and rescue during a fire incident

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- How many types of fire evacuation are there.

Elaborate

- Elucidate the staff fire notice with the help of (Fig 9.9.1), given in the Participant Handbook.
- Elucidate the fire evacuation process with the help of (Fig 9.9.2), given in the Participant Handbook.

Activity

Brief

- Each group must demonstrate with the help of a drill the evacuation procedure in case of fire.

Activity Description

- Group the students into a group of four.
- Conduct a drill to show the process of fire evacuation.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 9.10 - First Aid

Unit Objectives

At the end of the session, the participants will be able to:

- Cataloguing the first aids

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Explain first aids.
- Explain the need for first-aid

Say

- First aid is the first treatment provided to a patient or sick person for any accident or sudden illness before an ambulance arrives, the arrival of a trained paramedic or before arriving at a facility capable of providing professional medical Menon.

Ask

- Need for first aid?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What is the first aid.

Elaborate

- Elucidate the first aid kit with the help of(Fig 9.10.1), given in the Participant Handbook

Activity

Brief

- Each group must develop a list of how to do bandaging

Activity Description

- Group the students into a group of four.
- Could you elaborate on how we can do bandaging?

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 9.11 - Potential Injuries and Ill Health

Unit Objectives

At the end of the session, the participants will be able to:

- Understanding the ill health as well as potential injuries

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Discuss the ill health as well as potential injuries.

Say

- A few common work-related injuries and illnesses.
  - Slips, trips and falls
  - Muscle strains
  - Being hit by falling objects
  - Cuts and lacerations
  - Inhaling toxic fumes
  - Crashes and collisions
  - Exposure to loud noise
  - Fights at work

Ask

- What do you mean ill health as well as potential injuries in workplace?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain the ill health as well as potential injuries.

Elaborate

- Ensure about the health as well as potential injuries

Activity

Brief

- Demonstrate how to check the ill health as well as potential injuries .

Activity Description

- Group the students into twos
- Describe the ill health as well as potential injuries.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 9.12 - Precautions in Mobility

Unit Objectives

At the end of the session, the participants will be able to:

- Demonstration of the precautions in mobility

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Describe the precautions in mobility.

Say

- Precautions at the workplace may include.
  - Keep every corner organised, clean and clutter-free
  - Usage of mats on slippery floors
  - Properly stored combustible material
  - Use appropriate PPE such as safety glasses, gloves, hard hats, and respiratory protection. Ensure that PPE is properly fitted, maintained, and used correctly.
  - Regularly inspect and maintain equipment to ensure it is in good working condition. Replace any damaged or worn-out parts immediately.
  - Identify and control hazards in the workplace, such as slip and trip hazards, dangerous chemicals, and electrical hazards. Implement safety procedures and equipment to minimize risks.
  - Encourage employees to report any safety concerns or incidents, including near-misses. Investigate and address all reports promptly.
  - Provide emergency preparedness

The most important to have medical facilities and proper first aid for the employees working with heavy equipment and machinery at the workplace.

Ask

- What do you mean precautions in mobility?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What are precautions in mobility?

Elaborate

- Discuss the precautions in mobility

Activity

Brief

- Each group must develop a list of precautions in mobility in workplace.

Activity Description

- Group the students into twos
- Discuss the precautions in mobility.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 9.13 - Significance of various types of hazard and safety signs

Unit Objectives

At the end of the session, the participants will be able to:

- Understanding the impact of various types of hazard and safety signs

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Discuss the impact of various types of hazard and safety signs.

Say

- There are various types of safety signs.
  - Biological hazards symbol
  - Chemical hazards symbol
  - Safety hazards symbol
  - Ergonomic hazard symptoms
  - Work Organization hazard symbol
- Safety hazards are the most common workplace risks

Ask

- What do you mean safety signs?
- Difference types of safety signs?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What are organizational policies.
- Different types of safety signs.

Elaborate

- Elucidate the role of hazard in risk assessment with the help of(Table 9.13.1), given in the Participant Handbook.
- Elucidate the chemical hazard safety signs with the help of(Table 9.13.2), given in the Participant Handbook.
- Elucidate the biological hazard safety signs with the help of(Table 9.13.3), given in the Participant Handbook.
- Elucidate the Work organization related hazard safety signs with the help of(Table9.13.4), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of various types of hazard and Safety Signs in workplace.

Activity Description

- Group the students into twos
- Discuss the safety hazards symbol.
- Describe the biological hazard significance.
- Discuss the Work Organization hazard symbol.
- Discuss the ergonomic hazard symptoms.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Notes

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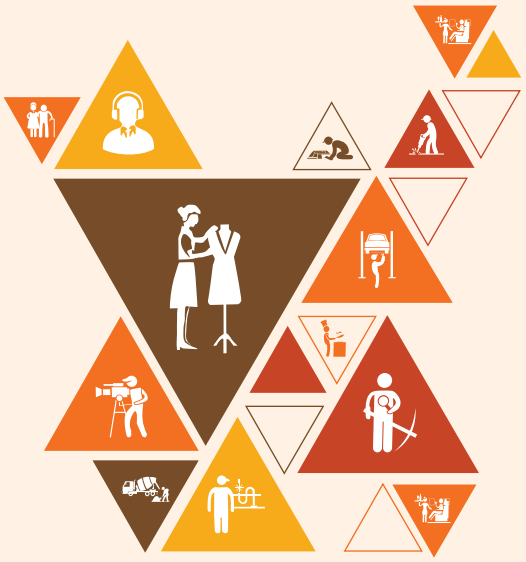
FICSI
Food Industry Capacity and Skill Initiative

10. Work Effectively in an Organisation



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Key Learning Outcomes

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

- Categorize the organizational policies
- Catalogue the Legislations, standards, policies, and procedures
- Analyse the reporting structure
- List the inter-dependent functions
- Discuss the impact of harassment and discrimination
- Monitor the ways of prioritising the task
- Record the types of communication skills
- Evaluate the ways of carrying out teamwork
- Highlight the ethics and discipline
- Illustration of the grievance's solution
- Recognize the interpersonal conflicts
- Identify the disabilities and challenges
- Outline the gender sensitivity and discrimination
- Discuss the applicable legislations, grievance redressal mechanisms
- Analyse the process of transacting with others without personal bias

Unit 10.1 - Organizational Policies

Unit Objectives

At the end of the session, the participants will be able to:

- Categorize the organizational policies

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Tell about the organizational policies.

Say

- There are different types of organizational policies at workplace.
  - Workplace health and safety policy
  - Non-discrimination and anti- harassment policies
  - Equal opportunity policy
  - Employee code of conduct policy
  - Leave policy
  - Employee time- stamping policy
  - Employee disciplinary and termination policy
  - E-mail policy
  - Social media policy
  - Mobile phone policy
  - Temporary policy

Ask

- What do you mean organizational policies?
- Difference types of organizational policies?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What are organizational policies.
- Different types of organizational policies.

Elaborate

- Discuss the organizational policies and types of organizational policies at the workplace.

Activity

Brief

- Each group must develop a list of difference types of organizational policies in the workplace.

Activity Description

- Group the students into twos
- Different types of organizational policies in the workplace.
- Describe the organizational policies.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.2 - Legislations, standard, policies, and procedures

Unit Objectives

At the end of the session, the participants will be able to:

- Catalogue the Legislations, standards, policies, and procedures

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Describe the Legislations, Standards, Policies, and Procedures.

Say

- Policies and procedures is a general set of guidelines at the workplace to designed in line with the company's objective for dealing with an issues and Policies communicate the connection between the organization.

Ask

- What do you mean Standard practices at a workplace?
- Difference between policy and procedure?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain the importance of policies and procedure at the workplace.
- Standard practices at a workplace.

Elaborate

- Describe the difference between policy and procedure with the help of (Fig 10.2.1), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of difference between policy and procedure.

Activity Description

- Group the students into twos
- Difference between policy and procedure.
- Discuss the standard practices at a workplace.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.3 - Reporting Structure

Unit Objectives

At the end of the session, the participants will be able to:

- Analyse the reporting structure

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Recall the reporting structure.

Say

- There are various types of reporting structure.
  - Vertical structure
  - Horizontal structure

Ask

- What are reporting structure?
- Types of reporting structure

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What are reporting structure functions?

Elaborate

- Describe the company's reporting structure with the help of (Fig 10.3.1), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of various types of reporting structure.

Activity Description

- Divide the students in 2 groups
- List down the reporting structure.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.4 - Inter-Dependent Functions

Unit Objectives

At the end of the session, the participants will be able to:

- List the inter-dependent functions

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Explain the inter-dependent functions.

Say

- There are two main components of inter-dependence.
  - Collaboration
  - Delegation
- There are different types of inter-dependence
  - Pooled Inter-dependence
  - Sequential Inter-dependence
  - Reciprocal Inter-dependence

Ask

- What is the Inter-dependence?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain the different types of Inter-dependence.
- What is inter-dependence functions?

Elaborate

- Describe the process of the concept of Inter-dependence with the help of(Fig 10.4.1), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of various types of Inter-dependence.

Activity Description

- Group the students into twos
- List down the Process of the concept of Inter-dependence.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.5 - Harassment and Discrimination

Unit Objectives

At the end of the session, the participants will be able to:

- Discuss the impact of harassment and discrimination

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Describe the impact of harassment and discrimination.

Say

- There are different types of workplace discrimination.
  - Gender discrimination
  - Age discrimination
  - Race discrimination
  - Skin colour discrimination
  - Mental and physical disability
  - Genetic information
  - Religion discrimination

Ask

- What do you mean by harassment and discrimination?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What are the harassment and discrimination in the workplace.

Elaborate

- Describe the Types of workplace harassment with the help of(Fig 10.5.1 Identification of harassment work), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of workplace harassment.

Activity Description

- Group the students into twos
- List down the workplace harassment.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.6 - Prioritising Tasks

Unit Objectives

At the end of the session, the participants will be able to:

- Monitor the ways of prioritizing the tasks

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Explain the ways of prioritizing the task.

Say

- There are seven strategies for prioritizing tasks at the workplace.
  - Having a list that contains all tasks or works in one place
  - Identify what's important
  - Highlight what is necessary
  - Prioritize based on importance
  - Avoid competing with priorities
  - Consideration of the efforts made in the tasks
  - Constantly reviewing task and be realis

Ask

- What do you mean by prioritizing task?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What are the prioritize task on the workplace.

Elaborate

- Discuss the different ways to prioritize task on the workplace.

Activity

Brief

- Each group must develop a list of prioritize task on the workplace.

Activity Description

- Group the students into twos
- List down the prioritize task on the workplace.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.7 – Communication Skills

Unit Objectives

At the end of the session, the participants will be able to:

- Record the types of communication skills

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Discuss the types of communication skills.

Say

- There are different types of communication skills in the workplace .
  - Body Language (non-verbal)
  - Listening
  - Clarity and Conciseness
  - Friendliness
  - Empathy
  - Confidence
  - Respect

Ask

- What is the communication skills?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain the types of communication skills.

Elaborate

- Elucidate the Essential communication skills with the help of(Table 10.7.1), given in the Participant Handbook.
- Elucidate the key active listening skills with the help of(Table 10.7.2), given in the Participant Handbook..

Activity

Brief

- Each group must develop a list of types of communication skills.

Activity Description

- Group the students into twos
- List down the different types of types of communication skills.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.8 - Teamwork

Unit Objectives

At the end of the session, the participants will be able to:

- Evaluate the ways of carrying out a teamwork

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Recall the teamwork.

Say

- Different tips to improve teamwork in the organization .
  - Encourage informal social events
  - Clarify Roles
  - Reward and recognition
  - Specify long-term as well short-term goals
  - Avoid micro-management
  - Respect Individuality
  - Listen to your employees
  - Feedback
  - Seek feedback

Ask

- What do you mean by teamwork?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain the teamwork.

Elaborate

- Teamwork is a cumulative effort done by a team or a group of members in order to acquire a common goal or to complete a given work or task in the most effective and powerful way.

Activity

Brief

- Each group must develop a list of teamwork in the organization.

Activity Description

- Group the students into twos
- Make them discuss the teamwork tips to improve teamwork in the organization

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.9 - Ethics and Discipline

Unit Objectives

At the end of the session, the participants will be able to:

- Evaluate the ways of carrying out a teamwork

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Tell about the ethics and discipline.

Say

- There are many various ways to ethics and discipline.
  - Setting clear goals and objectives
  - Mentoring
  - Set example
  - Need of right work environment
  - Encourage professionalism
  - Discipline
  - Listen to your employees
  - Feedback
  - Rewards and recognition

Ask

- What do you mean by ethics and discipline?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain the ethics and discipline.

Elaborate

- Discuss about the ethics and discipline.

Activity

Brief

- Each group must develop a list of ethics and discipline.

Activity Description

- Group the students into twos
- Ethics and discipline.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.10 - Grievances Solution

Unit Objectives

At the end of the session, the participants will be able to:

- Illustration of the grievance's solution

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Explain the Grievance's Solution.

Say

- There are various types of grievance's solution.
  - Prompt and timely action
  - Grievance acceptance
  - Collect information
  - Cross verify the grievance cause
  - Decision making
  - Review and implement

Ask

- What is grievance's solution?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain the grievance's solution.

Elaborate

- Discuss the grievance's solution.

Activity

Brief

- Each group must develop a list of five ways in order to address the grievances effectively.

Activity Description

- Group the students into twos
- List down the ways in order to address the grievances effectively.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.11 - Interpersonal Conflicts

Unit Objectives

At the end of the session, the participants will be able to:

- Recognize the interpersonal conflicts

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Recall the Interpersonal Conflicts.

Say

- Different types of ways to resolve conflict at the workplace.
  - Communicate
  - Listen carefully
  - Show empathy
  - Never hold back any grudges
  - Effective communication skill

Ask

- What do you mean by interpersonal conflicts?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain the interpersonal conflicts.

Elaborate

- Describe the interpersonal conflicts.

Activity

Brief

Each group must develop a list of ways to resolve conflict at the workplace.

Activity Description

- Group the students into twos
- List down the ways to resolve conflict at the workplace.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.12 - Disabilities and Challenges

Unit Objectives

At the end of the session, the participants will be able to:

- Identify the disabilities and challenges

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Explain the disabilities and challenges.

Say

- There are various ways to disabilities and challenges.
  - Physical barriers
  - Nature of co-workers and stereotyping
  - Communication
  - Policy barriers

Ask

- What is disabilities and challenges?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What is disabilities and challenges?

Elaborate

- Describe the disabilities and challenges.

Activity

Brief

Each group must develop a list of disabilities and challenges.

Activity Description

- Group the students into twos
- List down the disabilities and challenges.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.13 - Gender Sensitivity and Discrimination

Unit Objectives

At the end of the session, the participants will be able to:

- Identify the disabilities and challenges

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Discuss the gender sensitivity and discrimination.

Say

- Gender sensitivity and discrimination has also been an ongoing dialogue inside the workplace.

Ask

- What do you mean by gender sensitivity and discrimination?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What is disabilities and challenges?
- Gender sensitivity and discrimination.

Elaborate

- Describe the gender sensitivity and discrimination.

Activity

Brief

- Each group must develop a list of gender sensitivity and discrimination.

Activity Description

- Group the students into twos
- Gender sensitivity and discrimination.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.14 - Applicable Legislation, Grievance Redressal Mechanisms

Unit Objectives

At the end of the session, the participants will be able to:

- Discuss the applicable legislations, grievance redressal mechanisms

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Explain the applicable legislations, grievance redressal mechanisms.

Say

- In India, certain central and state-specific labour laws require the employer to adopt certain grievance redressal mechanisms at the workplace.

Ask

- What do you mean by grievance redressal mechanisms?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What is applicable legislations?
- Explain the grievance redressal mechanisms.

Elaborate

- Discuss the applicable legislations grievance redressal mechanisms.

Activity

Brief

- Each group must develop a list of grievance redressal mechanisms.

Activity Description

- Group the students into twos
- Explain the grievance redressal mechanisms.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 10.15 - Transacting With Others without Personal Bias

Unit Objectives

At the end of the session, the participants will be able to:

- To administer with others without personal bias

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Describe the Personal Bias.

Say

- Personal Bias includes.
- Recognizing an individual's own biases
- Focusing on people
- Increasing exposure to biases

Ask

- What are Personal Bias?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What are Personal Bias.

Elaborate

- Explain the Personal Bias.

Activity

Brief

- Each group must come up with a list of personal bias.

Activity Description

- Group the students into twos
- List down the personal bias.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Notes

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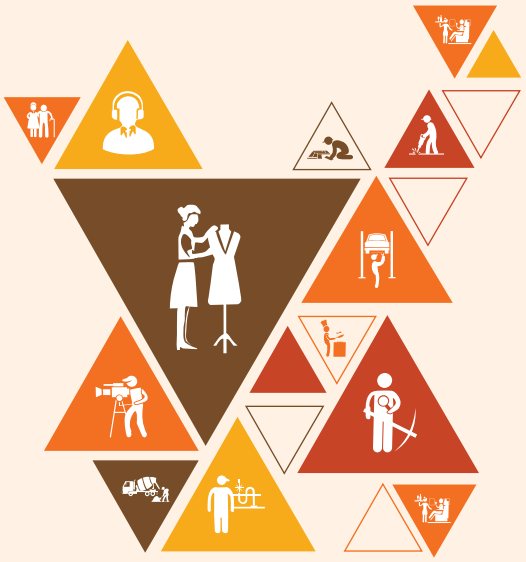
11. Material Conservation

Unit 11.1 Material Handling
Unit 11.2 Workstation Layout, Electrical and Thermal Equipment
Unit 11.3 Organisational Procedures for Minimising Waste
Unit 11.4 Practices of Efficient and Inefficient Management
Unit 11.5 Material and Water Usage



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Key Learning Outcomes

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

- Identify the ways to handle materials.
- Categorize the workstations layouts, electrical and thermal equipment.
- List the organizational procedures for minimizing waste.
- Analyze the practices of efficient and inefficient management.
- Discuss the material and water usage.

Unit 11.1 - Material Handling

Unit Objectives

At the end of the session, the participants will be able to:

- Identify the ways to handle materials

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Discuss the different ways to handle materials.
- Describe the hazards, risks and threats associated with handling different materials

Say

- There are different types of material handling equipment

Ask

- What do you mean by ways to handle materials?
- What is the loading and unloading materials?
- How to maintain package?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- There are different kinds of material handling equipment.
- There are multiple hazards, risks and threats can be identified during receiving, loading & unloading, storage, and transportation for handling different types of materials.

Activity

Brief

- Show about the Electricity utilization.

Activity Description

- Group the students into twos
- Discuss the Inspection of vehicles
- Explain about the loading and unloading of materials.
- Show how to organize the raw materials, packaging materials, workforce, equipment.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 11.2 - Workstation Layout, Electrical and Thermal Equipment

Unit Objectives

At the end of the session, the participants will be able to:

- Categorize the workstation layouts, electrical and thermal equipment

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Discuss the workstation layouts, electrical and thermal equipment.

Say

- Various factors of storage space requirement.
- Ensure about the workplace layout design and proper cleanliness in workplace.

Ask

- What is the electrical and thermal equipment?
- What do you mean by workplace layout design?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- List the different ways to workstation layouts, electrical and thermal equipment.

Elaborate

- Workstation layouts, electrical and thermal equipment

Activity

Brief

- Conduct Bakery Equipment Scavenger Hunt.

Activity Description

- Divide the group into teams of 3-5 people.
- Provide each team with a list of bakery equipment and tools, such as ovens, mixers, proofing cabinets, cooling racks, baking sheets, etc.
- Give each team a map of the bakery workstation layout or a physical layout if possible.
- Explain that they need to find and photograph (or write down) each piece of equipment on the list within a certain amount of time, depending on the size of the bakery and the complexity of the layout.
- As a bonus, teams can also be encouraged to identify any electrical and thermal equipment, such as circuit breakers, electrical outlets, and ventilation systems, and take photos of them as well.
- Once the time is up, teams can compare their findings and discuss how the equipment is used in the baking process, as well as the importance of proper electrical and thermal management in a bakery.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 11.3 - Organisational Procedures for Minimising Waste

Unit Objectives

At the end of the session, the participants will be able to:

- List the organizational procedures for minimising waste.

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Recall the organizational procedures for minimising waste.
- List the various types organizational waste

Say

- There are different types of organizational waste and ways to minimise them.
  - Transportation
  - Inventory
  - Motion
  - Waiting
  - Overproduction

Ask

- Organizational procedures for minimising waste?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Organizational procedures for minimizing waste.

Elaborate

- Elucidate the Overproduction with the help of (figure 11.3.1), given in the participant handbook

Activity

Brief

- List the various types of organizational waste .

Activity Description

- Group the students into twos
- Ask student to list the procedures for minimising waste.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 11.4 - Practices of Efficient and Inefficient Management

Unit Objectives

At the end of the session, the participants will be able to:

- Analyse the practices of efficient and inefficient management.

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Explain the practices of efficient and inefficient management.

Say

- There are various ways of inefficient management.
  - Uneven prioritization of work
  - Non-essential work
  - Lack of resource planning
- The Efficient Management Practices:-
  - Consistency
  - Goal setting
  - Delegation
  - Task prioritization
  - Effective communication

Ask

- What is the Inefficient Management Practices?
- What are the Efficient Management Practices?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain about the practices of efficient and inefficient management.

Activity

Brief

- Show about the inefficient management practices and efficient management practices .

Activity Description

- Group the students into twos
- Efficient and inefficient management.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 11.5 - Material and Water Usage

Unit Objectives

At the end of the session, the participants will be able to:

- Discuss the material and water usage.

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Explain the material and water usage.

Say

- Water is used for various purposes.

Ask

- What is the Material Usage?
- What do you mean by the Water Usage?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain about the Material Usage, Water Usage, Industrial usage of water.

Elaborate

- Elucidate the Industry-wise water consumption with the help of (figure 11.5.1), given in the participant handbook
- Elucidate the Industrial wastage of water with the help of (figure 11.5.2), given in the participant handbook

Activity

Brief

- Show material and water usage methods.

Activity Description

- Group the students into twos
- Ask students to make list of Industry-wise water consumption.
- List the 2-3 Industrial usage of water.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Notes

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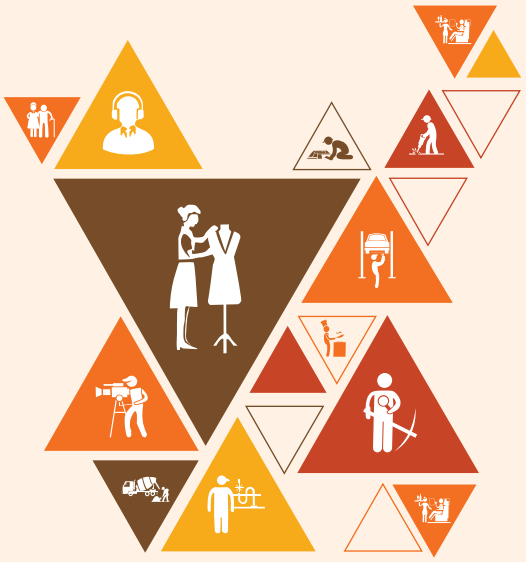
12. Energy and Electricity Conservation

Unit 12.1 Define Electricity
Unit 12.2 Basics of electricity
Unit 12.3 Energy efficient devices
Unit 12.4 Standard Practices for Conserving Electricity



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Key Learning Outcomes

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

- Define electricity.
- State the basics of electricity.
- Identify the energy-efficient devices.
- Explain the standard practices to be followed for conserving electricity.
- Illustrate electrical equipment and appliances.

Unit 12.1 - Define Electricity

Unit Objectives

At the end of the session, the participants will be able to:

- Define Electricity.

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Recall the Definition of Electricity.
- Explain about the different coloured dustbins.

Say

- Electric current is used to energies equipment.

Ask

- What is the Electricity?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain about the Electricity utilization.

Elaborate

- Elucidate the Electricity utilization with the help of (figure 12.1.1), given in the participant handbook

Activity

Brief

- Show about the Electricity utilization methods.

Activity Description

- Group the students into two.
- Ask to make Electricity utilization methods they have used.
- Discuss with the class about the outcomes.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 12.2 - Basics of electricity

Unit Objectives

At the end of the session, the participants will be able to:

- State the Basics of electricity.

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Discuss the basics of electricity.

Say

- There are three primary electrical parameters.
  - Volt
  - Ampere
  - Ohm

Ask

- What do you mean by basics of electricity?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Parameters to check Electricity.

Elaborate

- Elucidate the Conductor of Electricity with the help of (figure 12.2.1), given in the participant handbook

Activity

Brief

- Demonstrate activity where participants learn how to wire and troubleshoot a basic electrical circuit commonly found in a bakery.

Activity Description

- Group the students into twos
- Introduce the basics of electricity and the electrical components commonly found in a bakery.
- Provide a live demonstration of how to wire a basic circuit, such as a switch controlling a light bulb or a mixer.
- Once participants have wired their own circuits, provide a troubleshooting exercise where they must identify and fix common electrical problems, such as a loose wire or a blown fuse.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 12.3 - Energy Efficient Devices

Unit Objectives

At the end of the session, the participants will be able to:

- Identify the Energy efficient devices.

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Describe the energy-efficient devices.
- Explain about the common ways to identify electrical problems.

Say

- There are different uses of energy-efficient devices.

Ask

- What are the energy-efficient devices?
- What do you mean by Energy Conservation?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Ensure about the different ways to identify electrical problems.

Elaborate

- Elucidate the Energy-efficient devices with the help of (figure 12.3.1), given in the participant handbook

Activity

Brief

- Electrical equipment involves any machine powered by electricity.

Activity Description

- Group the students into twos
- Energy-efficient devices.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Unit 12.4 - Standard Practices for Conserving Electricity

Unit Objectives

At the end of the session, the participants will be able to:

- Explain the standard practices s for conserving electricity.

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Discuss the Standard Practices for Conserving Electricity.

Say

- Practices for saving electricity can be good for the pocket.

Ask

- What are the saving electricity?
- What is the conserve electricity?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Environmental reasons to conserve electricity and Practices for saving electricity.

Elaborate

- Standard practices for conserving electricity.

Activity

Brief

- Different ways to conserving electricity and saving electricity.

Activity Description

- Group the students into twos
- Saving Electricity.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

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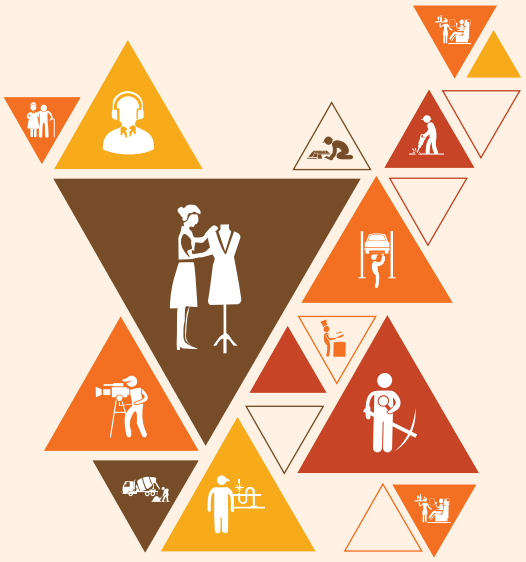
13. Waste Management and Recycling

Unit 13.1 Types of Waste

Unit 13.2 Waste Management and Disposal Solutions

Unit 13.3 Pollution and Remedies



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Key Learning Outcomes

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

- List the types of wastes.
- Describe waste management and disposal solutions.
- Explain pollution and its remedies.

Unit 13.1 – Types of Waste

Unit Objectives

At the end of the session, the participants will be able to:

- List the different types of waste.

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Discuss the different types of wastes.
- Explain about the different coloured dustbins.

Say

- There are different types of wastes.
  - Recyclable waste
  - Non-recyclable waste
- There are different types of dustbins
  - Green
  - Blue
  - Red

Ask

- What do you mean by Recyclable waste and Non-recyclable waste?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain the Hazardous wastes and Municipal Waste.

Elaborate

- Elucidate the Hazardous wastes with the help of (figure 13.1.1), given in the participant handbook
- Elucidate the Ways to process industrial and biomedical wastes with the help of (figure 13.1.2), given in the participant handbook
- Explain the Examples of waste collected with the help of (figure 13.1.3), given in the participant handbook

Activity

Brief

- List the different ways to waste management.

Activity Description

- Group the students into a group of four.
- Lists of different types of waste.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Notes

Unit 13.2 - Waste Management and Disposal Solutions

Unit Objectives

At the end of the session, the participants will be able to:

- Describe waste management and disposal solutions.

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Discuss the waste management and disposal Solutions.

Say

- There are different waste management procedure and disposal solutions.

Ask

- What are the waste management?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Explain the Hazardous wastes and Municipal Waste.

Elaborate

- Elucidate the Waste management and disposal solutions with the help of (figure 13.2.1), given in the participant handbook
- Elucidate the Waste Management Hierarchy with the help of (figure 13.2.2), given in the participant handbook

Activity

Brief

- Each group must develop a list of Waste Management and Disposal Soluof a baking technician /operative in the baking industry.

Activity Description

- Group the students into a group of four.
- Explain the Waste Management Hierarchy.

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

Notes

Unit 13.3 - Pollution and Remedies

Unit Objectives

At the end of the session, the participants will be able to:

- Explain pollution and its remedies.

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Recall the Pollution .

Say

- Pollution is capable of being controlled by using non-toxic soaps, detergents and cleaning products.

Ask

- What do you mean by pollution?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Different types of pollution.

Elaborate

- Pollution and its remedies.

Activity

Brief

- Each group must develop a list of pollution and remedies.

Activity Description

- Group the students into a group of four.
- Explain the pollution. .

Debrief

- Request the class questions like, "What did we do in this activity?" to summarise the experience. What did this activity teach us?

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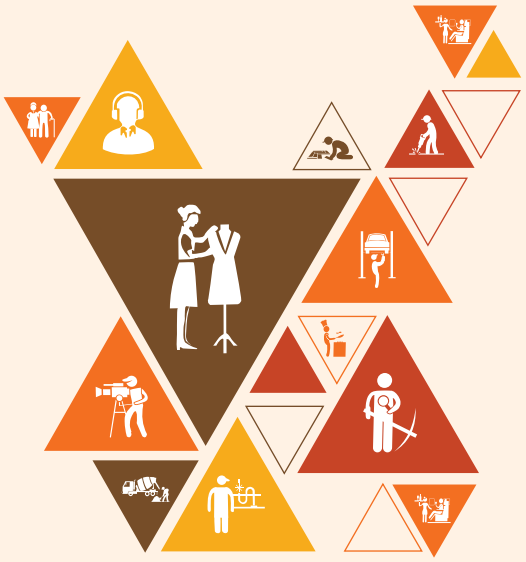
14. Extraction of Fruit Juice for Making Squash

Unit 14.1 - Perform Fruit Juice Extraction Process



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Key Learning Outcomes

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

- Perform the tasks to extract the fruit juice for producing the squash and juices
- Discuss the procedures followed to extract fruit juice for making squash

Unit 14.1 - Perform Fruit Juice Extraction Process

Unit Objectives

At the end of the session, the participants will be able to:

- State the significance and procedure of interpreting and analysing the process chart, product flow chart, and formulation chart for the production process
- Discuss the fruit juice extraction process
- Explain the standard procedure to dispose of the waste produced while extracting the juice
- Describe the physical parameters (such appearance, colour, consistency, flavour, taste, etc.) for checking the quality of extracted juice
- Discuss the standard procedure to take and send the samples of the extracted fruit juice to quality lab for analysis

Resources to be Used

- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Juice extractor
- Collection tank
- Required enzymes
- Raw material (various fruits)
- Facilitator's Guide
- Participant's Handbook

Do

- Begin by explaining the general steps involved in fruit juice extraction, such as washing the fruit, cutting it into pieces, and separating the juice from the pulp.
- Show the students how to perform each step of the fruit juice extraction process, using real fruit and equipment. Make sure they understand the importance of safety precautions, such as using gloves and goggles when necessary.
- Give students an opportunity to practice the fruit juice extraction process themselves, either individually or in groups. Offer guidance and support as needed.

Say

- The process of extracting the juice from the fruit's solid components, such as pulp and seeds, is known as fruit juice extraction.
- The first step is to carefully wash the fruits to remove any dirt or debris. The juice is then extracted by crushing or pressing the fruits.

- To separate the juice from the pulp, some methods employ high-pressure hydraulic presses, while others use centrifugal force.
- To remove contaminants and extend the shelf life of the extracted juice, it may be pasteurised or filtered.
- The juice is then bottled or packaged for sale. The technique of extracting fruit juice changes based on the type of fruit utilized, but the core procedures stay the same.

Ask

- What factors, such as fruit variety, maturity, storage conditions, and processing processes, influence the quality and production of fruit juice?
- How do food processors maintain the safety and quality of fruit juice products, such as microbiological testing, pasteurisation, or sterile packaging?
- What are the many fruit juice products on the market, such as 100% fruit juice, fruit nectar, and fruit drink? What are the differences in fruit content, sugar content, and nutrients between them?
- How can food processors assure fruit juice consistency and uniformity, such as by blending different fruit varieties or altering sugar and acid levels?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Significance of Enzyme Activity
- Fruit Juice Extraction Process
- Methods of Fruit Juice Extraction
- Standard Procedure for Lab Analysis

Elaborate

- Elucidate the more about enzyme activity with the help of(Fig. 14.1 Benefits of Enzyme Activity of Fruit Juices), given in the Participant Handbook.
- Describe different types of fruit beverages with the help of(Fig. 14.2 Classification of Fruit Beverages), given in the Participant Handbook.
- Clarify key manufacturing stages in the fruit extraction process with the help of(Fig. 14.3 Fruit-Juice Extraction Process), given in the Participant Handbook.
- Explain how Fruit – juice extractor machine works with the help of(Fig. 14.4 Workflow Process of Fruit-Juice Extractor Machine), given in the Participant Handbook.
- Explains method of juice extraction with the help of (Fig. 14.5 Methods of Fruit-Juice Extraction), given in the Participant Handbook.
- Define the physical parameters for quality check with the help of (Fig. 14.6 Quality Parameters of Fruit Juices), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of fruit extraction process of different fruit (apple, mango, pineapple, etc.)

Activity Description

- Group the students into twos.
- Initiate a discussion within the class asking about a list of fruit extraction process of different fruit
- Request each group to clarify the in-between process.

Debrief

- Request the class questions like, "What did we do in this activity" to summaries the experience. What did this activity teach us?

Notes

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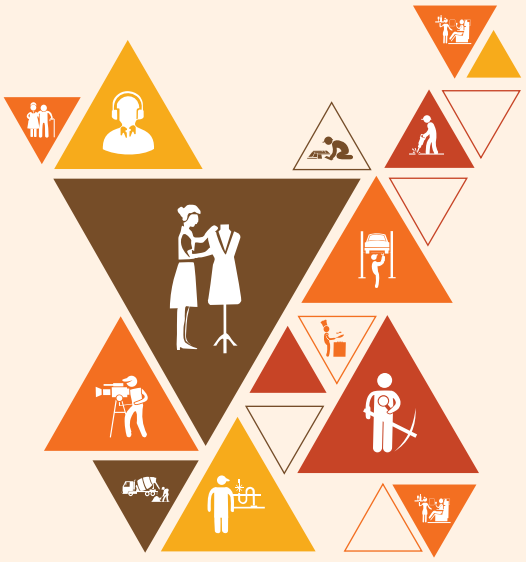
15. Pasteurization and Clarification of the Extracted Juice

Unit 15.1 - Pasteurize and Clarify the Extracted Juice



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Key Learning Outcomes

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

- Perform the tasks to pasteurize and clarify the extracted juice
- Discuss the process of pasteurization and clarification of extracted juice

Unit 15.1 - Pasteurize and Clarify the Extracted Juice

Unit Objectives

At the end of the session, the participants will be able to:

- State the significance of ensuring pasteurization of the cloudy juice immediately after pressing
- Discuss the pasteurization process of the extracted juice
- State the importance of ensuring the uniform mixing of enzymes during the clarification process
- State the significance of pasteurizing and clarifying the juice
- Elaborate on basic food microbiology and quality assessment based on physical parameters

Resources to be Used

- Computer,
- Projection Equipment,
- PowerPoint Presentation and software,
- Facilitator's Guide,
- Pasteurizer,
- Ultra-filtration unit,
- Collection tank,
- Required enzymes,
- Raw material (various fruits)
- Participant's Handbook

Do

- Start by explaining the reasons why pasteurization and clarification are important in the food processing industry. These processes help to remove impurities and harmful bacteria from the juice, making it safe for consumption.
- Show the students how to pasteurize and clarify the extracted juice using appropriate equipment and techniques. Explain the importance of timing and temperature control in these processes.
- Discuss different methods of pasteurization. Explain the different methods of pasteurization.

Say

- Pasteurization is the act of heating a product, such as juice, to a specified temperature for a set amount of time in order to destroy potentially hazardous germs. Pasteurizing juice increases its safety and shelf life.
- Clarification is the process of eliminating any suspended solids from juice, such as pulp or debris, to produce a clear liquid. Filtration or sedimentation can be used to accomplish this. Clarification enhances the appearance and texture of the juice while also extending its shelf life by removing elements that lead to deterioration.

Ask

- Why is pasteurization important in the food processing industry? What are some of the risks associated with consuming unpasteurized juice?
- What are the different methods of pasteurization, and what are the advantages and disadvantages of each?
- What is the purpose of clarifying extracted juice, and what are some of the methods used for this process?
- How do you determine the appropriate timing and temperature for pasteurization?
- How do you test juice for safety and quality after it has been pasteurized and clarified?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Pasteurization Process of the Extracted Juice
- Types of Pasteurization Process
- Explains different methods of pasteurization used in food processing industries
- Workflow Operation of Pasteurization Machine
- Clarification Process of Fruit Juice
- Quality Assessment and Sample Analysis

Elaborate

- Elucidate the main parameters that influence the pasteurization process of a fruit juice with the help of(Fig. 15.1 Parameters of Pasteurization Process), given in the Participant Handbook.(PowerPoint presentation can be used for better understanding of students)
- Describe various types of pasteurization process with the help of(Fig. 15.2 Types of Pasteurization Process), given in the Participant Handbook.
- Explains different methods of pasteurization used in food processing industries with the help of (Fig. 15.3 Various Methods of Pasteurization), given in the Participant Handbook. (Help of projector and internet can be taken to show student video related to topic for better understanding)
- Clarify where ladder belt conveyor is used with the help of (Fig. 15.4 Features of Plate Pasteurizer), given in the Participant Handbook.
- Explains the workflow of plate pasteurise machine with the help of (Fig. 15.5 Workflow Operation of Plate Pasteurizer Machine), given in the Participant Handbook.
- Define the common methods used in the clarification process of the fruit juices with the help of (Fig. 15.6 Various Methods of Clarification Process of Fruit Juice), given in the Participant Handbook. (Help of projector and internet can be taken to show student video related to topic for better understanding)
- Illustrate the Microbiological Standards for Fruit Products with the help of (Table.15.1 Microbiological Standards for Fruits and their Products), given in the Participant Handbook.

Activity

Brief

- Teaching students about pasteurizing and clarifying extracted juice in the food processing industry is to have them design and carry out a lab experiment to pasteurize and clarify juice.

Activity Description

- The activity can involve students working in small groups to:
- Research and select an appropriate method of pasteurization, such as using a pasteurization machine or a hot water bath.
- Research and select a method of clarification, such as using a settling tank or a centrifuge.
- Design an experiment to test the effectiveness of their chosen pasteurization and clarification methods.
- Carry out the experiment, measuring the temperature and timing of the pasteurization process and evaluating the effectiveness of the clarification process.

Debrief

- Request the class questions like, "What did we do in this activity" to summaries the experience. What did this activity teach us?

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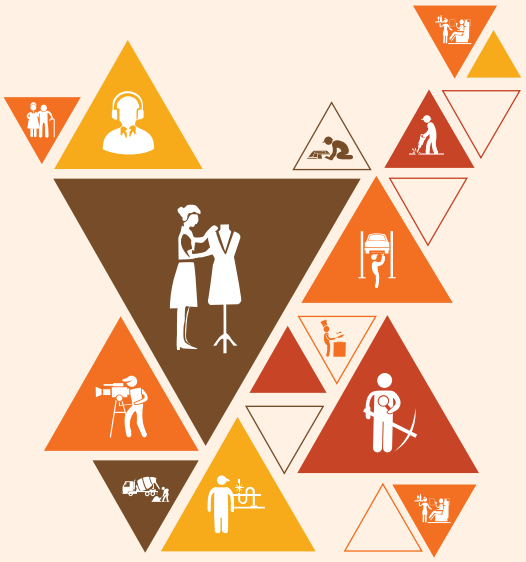
16. Prepare the Squash

Unit 16.1 - Production Process of Squash



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Key Learning Outcomes

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

- Perform the tasks to produce the squash
- Describe the methods required to prepare squash

Unit 16.1 - Production Process of Squash

Unit Objectives

At the end of the session, the participants will be able to:

- Discuss the usage of refractometer in the squash preparing process
- Describe the procedure to measure the quantity of acids, preservatives, color, flavor, etc. to be mixed in a blending tank
- State the importance of observing the mixing process and collecting a sample, and check physical parameters to ensure uniform mixing of the fruit juice
- Describe the control parameters of pasteurizer or heat exchanger
- Discuss the procedure to prepare and clarify fruit juice squash

Resources to be Used

- Computer,
- Projection Equipment,
- PowerPoint Presentation and software,
- Raw material (like sugar, water, etc.),
- Kettle, Collection tank,
- Facilitator's Guide,
- Participant's Handbook

Do

- Take students on a field trip to a local squash processing facility. This will provide them with an opportunity to see the production process in action and speak with industry professionals about their experiences.
- Have students create a flowchart or process map of the squash production process. This can help them to visualize the steps involved in producing squash and identify areas where improvements could be made.
- Set up a mock production line in the classroom or laboratory and have students work in teams to produce squash. This activity can help them to understand the importance of teamwork, quality control, and efficiency in the production process.

Say

- Squash production in the food processing sector requires various phases. The first step is to pick high-quality raw materials, which are often fresh and ripe fruits with a high sugar content.
- The fruits are then washed, peeled, and sliced into little pieces before being boiled in water with sugar and flavourings. The resulting combination is then mixed, filtered, and pasteurised to assure food safety.
- The hot squash mixture is then filled into jars or bottles, which are subsequently sealed and sterilised to extend their shelf life.

- Quality control methods are implemented at each stage of the process to guarantee that the finished product satisfies the desired standards of flavor, texture, and appearance.

Ask

- What is the process for selecting and preparing raw materials for squash production?
- What are the key steps in the squash production process, and what equipment is typically used at each stage?
- How is the squash cooked and processed to extract the juice?
- What is Refractometer?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- What is fruit squash
- Equipment used in Squash Making
- Process of Squash Making

Elaborate

- Elucidate how squash is prepared with the help of(Table 16.1 List of ingredients used for the preparation of squash), given in the Participant Handbook.
- Explain different instrument , tools used for making squash with the help of Table 16.2 List of Equipment and Tools for Squash Making), given in the Participant Handbook.
- Explains the preparation of fruit squash with the help of(Fig. 16.1 Workflow Process of Squash Making), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of the material used for making squash

Activity Description

- Group the students into twos.
- Initiate a discussion within the class asking about the list the material used for making squash
- Request each group to clarify the in-between process.

Debrief

- Request the class questions like, "What did we do in this activity" to summaries the experience. What did this activity teach us?

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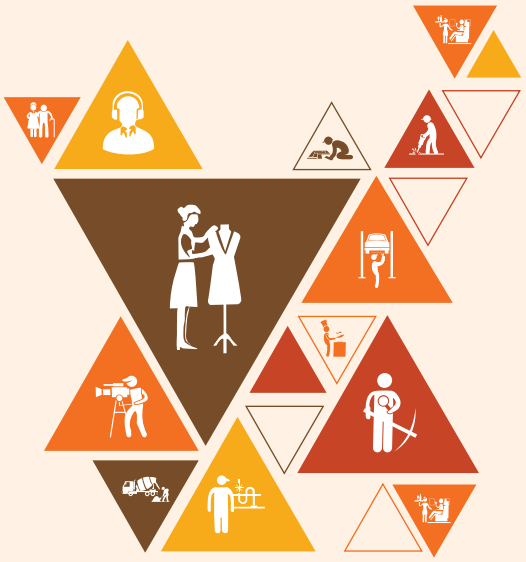
17. Fill, Pack and Store Juice and Squash

Unit 17.1 - Filling, Packing and Storage of Juice and Squash



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Key Learning Outcomes

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

- Perform the tasks to fill, pack and store the juice and squash
- Describe the reporting procedure regarding the discrepancy

Unit 17.1 - Filling, Packing and Storage of Juice and Squash

Unit Objectives

At the end of the session, the participants will be able to:

- Discuss the procedure to transfer the finished product into the filling tank
- Elaborate the SOP to wash bottle/plastic containers to fill measured quantity of finished products
- List the control parameters of the packaging machine, like filling volume, batch code details, date of manufacture, best before date, etc.

Resources to be Used

- Computer,
- Projection Equipment,
- PowerPoint Presentation and software,
- Facilitator's Guide,
- Packaging material and machine,
- labelling material and machine,
- Sealing machine,
- Participant's Handbook

Do

- Provide students with examples of juice and squash product labels and ask them to identify the key information that must be included on the label. This can help students to understand regulatory requirements related to product labelling.
- Have students simulate an inventory management exercise where they must track the production, filling, packing, and storage of juice or squash products. This can help them to understand the importance of efficient inventory management in the food processing industry.
- Take students on a tour of a local packaging and storage facility to see the process in action. This can provide them with an opportunity to speak with industry professionals and ask questions about the process.

Say

- Filling, packing, and storage are essential processes in the food processing industry's manufacturing of juice and squash. Filling the juice or squash into bottles or other packaging materials is part of the filling process, whereas packing entails sealing the packaging to assure product safety and quality.
- Proper storage is required to prevent spoiling and keep the product fresh. To maintain product safety and uniformity, quality control methods are essential throughout the filling, packing, and storage processes.

- Packaging materials, labelling regulations, and inventory management are all significant factors in the effective manufacture and distribution of juice and squash products.
- Overall, efficient and effective filling, packaging, and storage practises are critical for the food processing business to be successful and sustainable.

Ask

- What are the key considerations when selecting packaging materials for juice and squash products, and how do these impact the filling and storage process?
- What are the steps involved in filling and packaging juice and squash products, and how is quality control maintained throughout this process?
- What are the different types of packaging equipment used in the industry, and how do these differ in terms of efficiency and effectiveness?
- What are the regulatory requirements related to product labelling, and how are these requirements addressed in the filling and packaging process?
- What are the key factors to consider when storing juice and squash products, and how are these products protected from spoilage and contamination?
- What are the challenges associated with managing inventory in the food processing industry, and how are these challenges addressed in the filling, packing, and storage process?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Introduction to Packaging
- Packaging Machinery
- Filling and Bottling Operation of Squash
- Standard Procedure to Load Labels in Labeling Machine

Elaborate

- Elucidate the function of packaging with the help of(Fig. 17.1 Functions of packaging), given in the Participant Handbook.
- Explains the benefits of packaging of squash and juices with the help of(Fig.17.2 benefits of squash and juice), given in the Participant Handbook.
- Clarify filling station consist with the help of(Table 17.1 Various Functions of Filling Machine), given in the Participant Handbook.
- Clarify the how filling station works with the help of (Fig. 17.3 Workflow Process of Filling Station), given in the Participant Handbook.

Activity

Brief

- Filling, packing, and storage of juice and squash in the food processing industry

Activity Description

- Set up a demonstration area that includes a filling machine, packaging materials, and storage containers.
- Provide students with safety gear, such as gloves and aprons, and explain the importance of safety in the food processing industry.
- Demonstrate the filling process, including how the filling machine works, how the juice or squash is measured and dispensed, and how the bottles or packaging materials are filled.
- Explain the importance of quality control measures, such as checking for leaks or defects in the packaging materials, and how to ensure product safety and consistency.
- Demonstrate the packing process, including how to seal the packaging materials and add product labels with regulatory information.
- Discuss the importance of proper storage techniques, such as temperature control and protection from contamination.
- Allow students to practice the filling, packing, and storage process under your supervision, using appropriate safety gear.

Debrief

- Discuss the challenges and successes of the activity, and reinforce the key concepts and skills learned.

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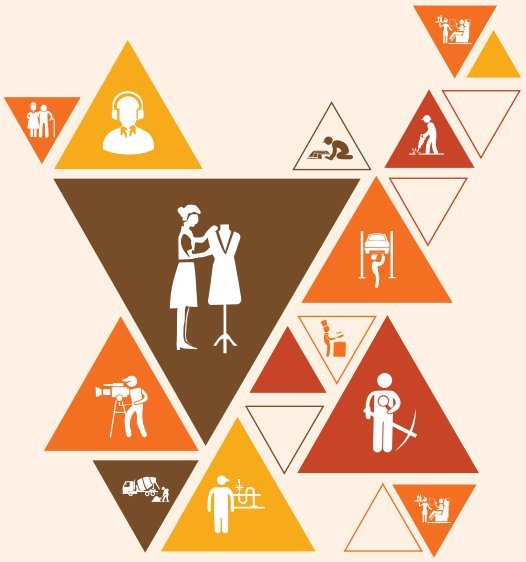
18. Perform Post-Production Cleaning and Regular Maintenance of Equipment

Unit 18.1 - Post-Production Cleaning and Regular Maintenance of Equipment



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Key Learning Outcomes

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

- Describe the post-production cleaning activities of required tools and equipment
- Perform the tasks to maintain the tools and equipment regularly

Unit 18.1 - Post-Production Cleaning and Regular Maintenance of Equipment

Unit Objectives

At the end of the session, the participants will be able to:

- List the appropriate cleaning agents and sanitizers to clean the work area, machinery, tools, and equipment after squash production
- Discuss the standard procedure and importance of cleaning and maintenance of all machines and equipment

Resources to be Used

- Computer
- Projection Equipment
- PowerPoint Presentation and software
- Facilitator's Guide
- Various cleaning agents and sanitizers
- Different machineries, tools, equipment
- Participant's Handbook

Do

- Conduct a live demonstration of the post-production cleaning process, using equipment that is commonly used in the food processing industry. Show students how to dismantle the equipment, clean and sanitize it, and reassemble it.
- Provide students with case studies of food processing companies that have faced challenges related to post-production cleaning and maintenance of equipment. Have students analyze the case studies and propose solutions to address the challenges.
- Divide students into small groups and provide them with different pieces of equipment commonly used in the food processing industry. Have each group research the post-production cleaning and maintenance requirements for their equipment and present their findings to the class.
- Invite a professional from the food processing industry to speak to the class about their experience with post-production cleaning and maintenance of equipment. They can share their expertise and provide practical examples and advice.

Say

- Cleaning work surfaces and machines after production is an important step in keeping a safe and sanitary workplace. It entails cleaning up any debris, waste, or toxins that may have accumulated throughout the manufacturing process.

- Cleaning machinery properly ensures that it runs efficiently and lowers the chance of mechanical failure. To prevent accidents and improve the general appearance of the workplace, the work environment must be carefully cleaned. Inadequate cleaning can result in workplace dangers, lost productivity, and lower product quality. As a result, having a complete post production cleaning plan in place is critical for maintaining a safe and efficient workplace.

Ask

- Why is post-production cleaning and regular maintenance of equipment important in the food processing industry?
- What are the potential risks and consequences of failing to properly clean and maintain equipment in the food processing industry?
- What are the key steps involved in the post-production cleaning process of equipment, and how are they carried out?
- How often should equipment be cleaned and maintained, and what factors determine the frequency of these activities?
- What are the different types of cleaning agents and tools used in the food processing industry, and how are they selected for specific equipment and processes?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Cleaning & Sanitizing Work Area, Machinery, Tools, And Equipment
- Cleaning Agents and Sanitizers Used for Cleaning
- Postproduction Cleaning of Work Area and Machinery
- Maintenance and Check

Elaborate

- Elucidate why we need to clean and sanitize with the help of(Fig. 18.1 Reasons for Cleaning and Sanitizing), given in the Participant Handbook.
- Describe categories of work area for cleaning with the help of(Fig. 18.2 Cleaning Work Area Categories), given in the Participant Handbook.
- Explain different types of detergent with the help of(Fig. 18.3 Various Ranges of Detergents), given in the Participant Handbook.
- Clarify the type of cleaner used for given surface with the help of(Table 18.1 Different types of cleaning agents, related risk factors, and safety measures), given in the Participant Handbook.
- Explains the various methods of cleaning the work area and machinery with the help of (Fig.18.5 Various Methods of Cleaning the Work Area and Machinery), given in the Participant Handbook.

- Define the sequence of a general cleaning procedure for surfaces in a food plant with the help of (Fig.18.6 Steps for Cleaning Work Area), given in the Participant Handbook.
- Explains workflow process of cleaning and maintenance of fruit squash and juice processing machinery and equipment.with the help of (Fig.18.7 Cleaning and Maintenance Process for Fruit-pulp Machinery and Equipment), given in the Participant Handbook.
- Explains workflow process of cleaning and maintenance of fruit squash and juice processing machinery and equipment.with the help of (Fig.18.7 Cleaning and Maintenance Process for Fruit-pulp Machinery and Equipment), given in the Participant Handbook.
- Explains the significance of reporting to the concerned authority with help of(Fig.18.8 Importance of Reporting Faulty Tools and Equipment), given in the Participant Handbook.

Activity

Brief

- Demonstrate how many different methods of cleaning the work area and machinery

Activity Description

- Divide the class into 2 groups.
- Begin the discussion by asking questions like, which types of cleaning is used for different surface of work area and machinery
- Demonstrate the various instruments used in cleaning the work area and machinery examples.
- Initiate a discussion within the class asking about the different methods they can use

Debrief

- Summarize the different methods of cleaning the work area and machinery

Notes

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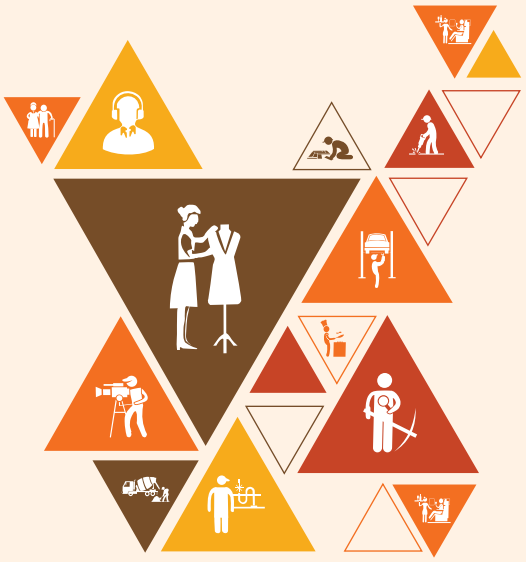
19. Prepare Jam and Jelly

Unit 19.1 - Production process of preparing Jam and Jelly



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Key Learning Outcomes

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

- Perform the tasks to prepare jam and jelly
- Discuss the process of preparing jam and jelly

Unit 19.1 - Production process of preparing Jam and Jelly

Unit Objectives

At the end of the session, the participants will be able to:

- Elaborate on the operating procedure of cooking kettle or tank
- State the significance of stirring the pulp continuously during the heating process
- State the importance of achieving specified pressure and temperature while cooking the fruit pulp or fruit juice
- Discuss the procedure and significance to check the quality of cooked product through physical parameters such as colour, appearance, texture, taste, etc. and to send the sample finished product for quality lab analysis
- Explain the procedure to transfer the finished product to the filling tank

Resources to be Used

- Computer,
- Projection Equipment,
- PowerPoint Presentation and software,
- Required tools and machinery,
- Viscometer
- Raw materials,
- Facilitator's Guide,
- Participant's Handbook

Do

- Have students research the different types of fruit and other ingredients used in making jam and jelly, and the best ways to select and prepare them for the production process. Students can present their findings to the class.
- Organize a hands-on cooking session where students can make their own batch of jam or jelly, following a standardized recipe and using the appropriate equipment and techniques. This allows students to gain practical experience with the production process.
- Have students create a process flow chart of the production process for making jam or jelly, detailing each step from ingredient selection to packaging and storage. This helps students visualize the process and understand how each step relates to the others.

Say

- Preparing jam and jelly often requires many critical procedures. First, the fruit is washed, graded, then crushed to liberate its juice. The juice is then cooked with sugar and pectin, a natural thickening agent, to make a gel-like consistency. The mixture is then heated until it reaches a certain temperature, usually around 220°F, to activate the pectin and obtain the appropriate texture.

Finally, the jam or jelly is poured into sterilised jars, sealed, and placed in a boiling water bath to assure shelf stability. The end result is a delectable spread that may be eaten over toast, biscuits, and other items.

Ask

- What are the key ingredients used in making jam and jelly, and how are they selected and prepared for the production process?
- What is the difference between jam and jelly, and how does this impact the production process?
- What are the key steps involved in the production process of jam and jelly, and how are they carried out?
- What equipment and tools are commonly used in the production process of jam and jelly, and how are they maintained and cleaned?
- How is the mixture of ingredients cooked, and what are the key factors to consider when cooking jam and jelly?
- How is the mixture of ingredients cooled, and what are the key factors to consider when cooling jam and jelly?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Preparation of Jam and Jelly
- Material Specification for the Preparation of Jam and Jelly
- Equipment used in making Jam and Jellies
- Processing of Jam
- Lab Analysis for Quality Check

Elaborate

- Elucidate the pectin and acid content in fruits with the help of(Table 19.1 Pectin and acid contents of fruits), given in the Participant Handbook.
- Describe the Wash, Sort & Dry the Fruits and Vegetables with the help of (Table 19.2 Equipment used in Jams and Jellies), given in the Participant Handbook.
- Explain how jam is prepared with the help of (Fig.19.12 Process flowchart for preparation of jam), given in the Participant Handbook.

Activity

Brief

- The production process of preparing jam and jelly in the food processing industry

Activity Description

- Divide the class into small groups and assign each group a different type of fruit (such as raspberries, blueberries, or peaches).
- Have each group research the best ways to select and prepare their fruit for the production process, and present their findings to the class.
- Now ask the groups to select one person from themselves who would write down the list of products on the board.
- When that participant comes to the board, other group members tell him the list of products they have thought of.

Debrief

- Summarize the list of processed foods and the sub-sectors.
- Add more products to the list with local examples.

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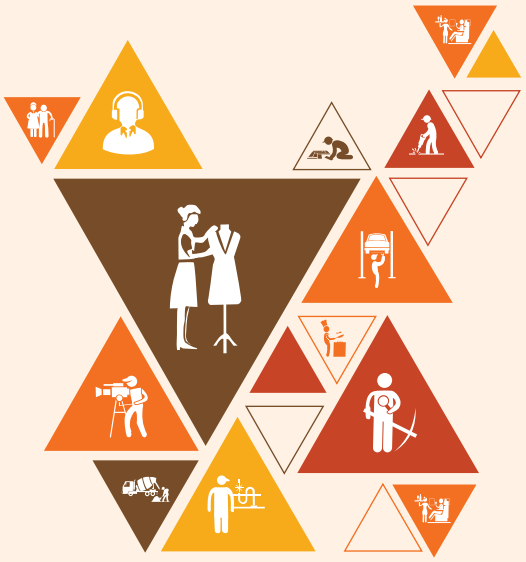
20. Prepare the Ketchup

Unit 20.1 - Process of Preparing Ketchup



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Key Learning Outcomes

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

- Perform the tasks to prepare ketchup
- Explain the procedure of preparing ketchup

Unit 20.1 - Process of Preparing Ketchup

Unit Objectives

At the end of the session, the participants will be able to:

- List the ingredients used in preparing ketchup such as sugar, salt, spice powder, vinegar, etc.
- Elaborate the procedure to prepare ketchup from the fruit pulp
- Explain the method to test the viscosity of the ketchup using viscometer

Resources to be Used

- Computer,
- Projection Equipment,
- PowerPoint Presentation and software,
- Facilitator's Guide,
- Flow chart
- Required tools and machinery,
- Packaging materials,
- Viscometer
- Participant's Handbook

Do

- Have students create a process flow chart of the production process for making ketchup, detailing each step from ingredient selection to packaging and storage. This helps students visualize the process and understand how each step relates to the others.
- Invite an industry expert from the food processing industry to speak to the class about the production process of making ketchup. The expert can share their experience and insights, and answer questions from students.

Say

- Ketchup is a popular condiment made by the food processing industry using a multi-step process. To begin, ripe tomatoes are washed, sorted, and pureed. The purée is then thickened by heating it with vinegar, sugar, and spices. After that, the mixture is sieved to remove any seeds or skin. The ketchup is then bottled, pasteurised, and chilled. To maintain food safety and quality control, the process is strictly monitored. Ketchup is a versatile condiment that is enjoyed by people all over the world.

Ask

- What are the key ingredients used in making ketchup, and how are they selected and prepared for the production process?

- What are the different types of equipment used in the production process of ketchup, and how are they used?
- What are the key steps in the production process of ketchup, and how do they impact the quality and safety of the final product?
- How is the consistency of ketchup achieved during the production process, and what factors can impact its texture and thickness?
- What are the different types of preservatives and additives used in ketchup, and what are their roles in the production process?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Preparation of Ketchup
- List of ingredients used in preparing Ketchup
- Procedure to prepare ketchup
- Method to test the viscosity of Ketchup using Viscometer

Elaborate

- Elucidate the ingredient needed to make ketchup with the help of(Table 20.1 List of ingredients used in the following way during the production of ketchup), given in the Participant Handbook.
- Describe the steps of processing ketchup with the help of(Table 20.2 Processing of ketchup), given in the Participant Handbook.
- Clarify the process of making tomato ketchup with the help of Fig. 20.2 Processing of ketchup), given in the Participant Handbook.
- Expalin common methods to test the viscosity of ketchup with the help of(Table 20.3 Methods to test the Viscosity of Ketchup), given in the Participant Handbook.
- Explains the standard operating procedure of the ladder belt conveyor with the help of (Fig.20.5 Standard Operating Procedure for Ladder Belt Conveyor), given in the Participant Handbook.
- Define the parameters for Visual inspection of fruits in the sorting procedure with the help of (Fig.20.7 Workflow Process of Inspecting Fruits), given in the Participant Handbook.
- Illustrate the Drying Line and Sorting Line Conveyor with the help of (Fig.20.10 Impact of Sorting Line Conveyor), given in the Participant Handbook.
- Explain type of spoilage with help of (Fig. 20.9 Microbiological Spoilage in Fruits and Vegetable), given in the Participant Handbook.
- Clarify how spoilage is identified with help of (Fig. 20.10 Parameters to check Spoilage), given in the Participant Handbook.
- Explain uses of following equipments with help of (Fig. 20.11 Hygrometer & Psychrometer) , given in the Participant Handbook.

Activity

Brief

- The process of preparing ketchup in the food processing industry

Activity Description

- Divide the students into small groups, and give each group a sheet of paper and a pen.
- On a whiteboard or projector, display a flowchart or diagram of the ketchup-making process. Label each step clearly and briefly describe what happens at each step.
- Ask each group to study the flowchart carefully and write down the steps in the ketchup-making process in the correct order. Encourage them to work collaboratively and to ask questions if they are unsure about any of the steps.
- Once the groups have completed their lists, ask each group to share their answers with the class. Have them read out their list of steps and explain their reasoning behind the order they chose.
- After all the groups have shared their answers, go through the correct order of the steps with the class. Ask if there are any questions or if any steps were unclear.
- Finally, to reinforce their learning, ask each group to draw a simple flowchart of the ketchup-making process on their sheet of paper, using the correct order and labeling each step clearly.

Debrief

- Request the class questions like, "What did we do in this activity" to summaries the experience. What did this activity teach us.

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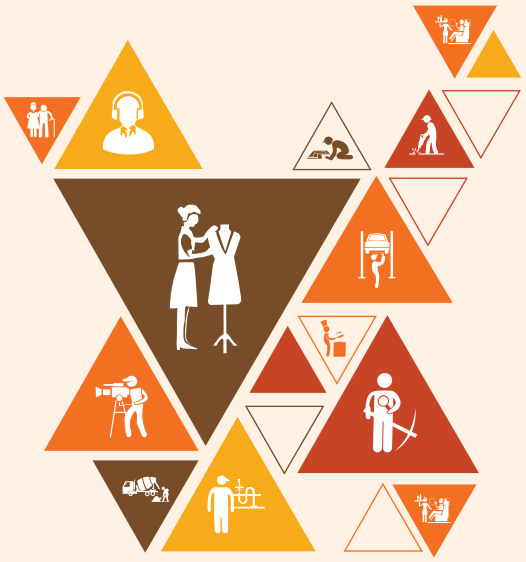
21. Fill and Pack Jam, Jelly, and Ketchup

Unit 21.1 - Operating packaging machine

Unit 21.2 - Labelling and Coding



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Key Learning Outcomes

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

- Perform the tasks to fill, pack and store the jam, jelly, and ketchup
- Describe the reporting procedure regarding any discrepancy in the packing of jam, jelly, and ketchup

Unit 21.1 - Operating packaging machine

Unit Objectives

At the end of the session, the participants will be able to:

- Discuss the procedure to load and operate the packaging machine
- State the importance of setting packaging machine for filling volume, speed, size, etc.
- Elaborate the standard procedure to wash bottle/plastic containers to fill measured quantity of finished products
- State the significance of spraying water on containers to cool and set product (setti ng in case of jam and jelly) or arrange filled jam/jelly containers in the rack for a specified time as per the standards

Resources to be Used

- Computer,
- Projection Equipment,
- PowerPoint Presentation and software,
- Facilitator's Guide,
- Flow chart
- Participant's Handbook

Do

- Start by demonstrating how to operate a packaging machine in the food processing industry. Show students how to set up the machine, load the product, and start the packaging process. Use a real or simulated packaging machine to demonstrate the steps involved in the process.
- Explain the safety protocols that need to be followed while operating a packaging machine. Emphasize the importance of wearing protective gear and following the instructions carefully. You can use videos, images or posters to illustrate the safety measures.

Say

- The materials and containers used to store, protect, and transport food products are referred to as food packaging. It is an important aspect of the food industry because it helps to preserve food quality and safety while also facilitating food distribution and marketing. Plastics, metals, glass, and paper-based products are all examples of food packaging materials. Each material has distinct properties such as durability, flexibility, and barrier properties, which can influence the shelf-life and safety of food products.

Ask

- What is the purpose of a packaging machine in the food processing industry?
- What are some of the safety precautions that need to be followed while operating a packaging machine?

- Can you explain the steps involved in setting up a packaging machine for a specific product?
- What are some of the challenges that operators may face while operating a packaging machine? How can these challenges be overcome?
- How can the quality of the packaged product be ensured while using a packaging machine? Notes for facilitation
- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Purpose of packaging
- Workflow process of jam and jelly packaging machine .
- How packaging line works

Elaborate

- Elucidate the Packaging Functions with the help of(Fig. 21.1 Functions of packaging), given in the Participant Handbook.
- Explain why packaging is done or why it is necessary with the help of (Table 21.1 Purpose of packaging), given in the Participant Handbook.
- Clarify the Processing of jam, jelly and ketchup with the help of(Fig. 21.5 Workflow process of Jam, Jelly and Ketchup packaging line), given in the Participant Handbook.

Activity

Brief

- Each group must develop a list of how to process of packaging is done

Activity Description

- Group the students into a group of four.
- List down the how pack ketchup, jam and jelly
- Elaborate the process of packing of ketchup, jelly and jam from start to end

Debrief

- Request the class questions like, "What did we do in this activity" to summarize the experience. What did this activity teach us?

Unit 21.2 - Labelling and Coding

Unit Objectives

At the end of the session, the participants will be able to:

- Elaborate the standard procedure to load labels in the labelling machine
- Discuss the procedure to set date coding machine for a batch number, date of manufacture, date of expiry, etc

Resources to be Used

- Computer,
- Projection Equipment,
- PowerPoint Presentation and software,
- Flow chart
- Facilitator's Guide,
- Participant's Handbook

Do

- Bring in a variety of packaged food products and ask students to identify and analyze the different components of the label. Have them identify the product name, list of ingredients, nutrition facts, and any other information that is required by law.
- Divide the students into small groups and give each group a list of labeling and coding regulations. Ask them to research and present their findings on one or more of the regulations, such as allergen labeling, country of origin labeling, or date coding. Encourage them to discuss the impact of these regulations on food safety and consumer trust.

Say

- Labelling and coding are critical aspects of food packaging because they provide critical information about the product, such as its ingredients, nutritional information, and expiration date. The information displayed on the packaging is referred to as labelling, and it can include the product name, manufacturer information, ingredients, nutrition facts, and allergen information. Many countries regulate food labelling to ensure that consumers have access to accurate and consistent information about the food they are purchasing. Coding, on the other hand, is the marking or printing of information on packaging, most commonly in the form of barcodes, lot numbers, or expiration dates. Coding is necessary for tracking and inventory purposes, and it can also be used to ensure that products are rotated and discarded properly.

Ask

- What is the purpose of labelling and coding in the food processing industry?
- Can you name some of the information that must be included on a food product label?

- What are some of the common labelling and coding technologies used in the food processing industry?
- How can labelling and coding errors impact food safety and consumer confidence?
- What are the consequences for a food processing company if they do not comply with labelling and coding regulations?
- How can labelling and coding help to ensure traceability of food products throughout the supply chain?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Function of a labelling machine
- Standard procedure in a coding machine.

Elaborate

- Elucidate the standard procedure to load labels in a labelling machine with the help of (Fig. 21.6 Standard Labeling Machine Loading Procedure), given in the Participant Handbook

Activity

Brief

- Each group must develop a list of how labelling and coding is done

Activity Description

- Group the students into a group of four.
- List down the how label ketchup, jam and jelly bottles or jars
- Elaborate the process of labelling and coding of ketchup, jelly and jam from start to end

Debrief

- Request the class questions like, "What did we do in this activity" to summarize the experience. What did this activity teach us?

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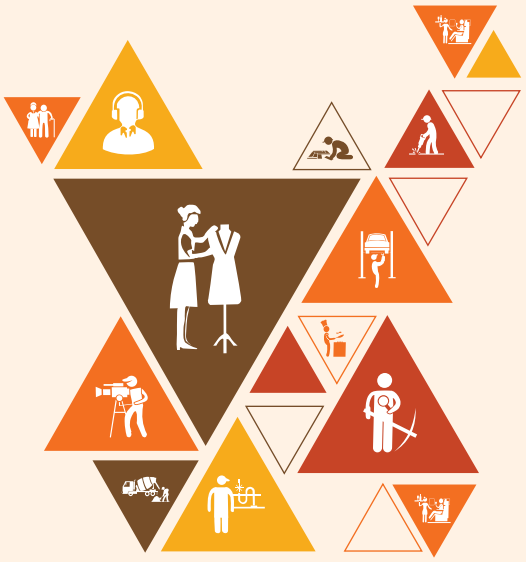
22. Post Production Cleaning and Regular Maintenance

Unit 22.1 - Cleaning Activities and Maintenance Check



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Key Learning Outcomes

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

- Describe the post-production cleaning activities of tools and equipment required
- Perform the tasks to maintain the tools and equipment regularly

Unit 22.1 - Cleaning Activities and Maintenance Check

Unit Objectives

At the end of the session, the participants will be able to:

- List the appropriate cleaning agents and sanitizers to clean the work area, machinery, tools, and equipment after jam, jelly, ketchup production and their uses
- Discuss the standard procedure and importance of cleaning and maintenance of all machines and equipment

Resources to be Used

- Computer,
- Projection Equipment,
- PowerPoint Presentation and software,
- Sanitizers
- Cleaning agent
- Facilitator's Guide,
- Participant's Handbook

Do

- Provide students with a variety of cleaning supplies and a piece of food processing equipment, such as a mixer or a conveyor belt. Ask them to work in pairs to clean the equipment thoroughly, following the proper cleaning procedures. Have them present their work to the class and discuss any challenges they encountered.
- Create a maintenance check scenario in which students are responsible for inspecting a piece of equipment for wear and tear, and identifying any potential problems. Provide them with a checklist of items to inspect and ask them to work in teams to complete the task. Have them present their findings to the class and discuss any necessary repairs or replacements.

Say

- Cleaning and maintenance checks are essential parts of the food processing industry's operations. Cleaning equipment and facilities on a regular basis helps to avoid the spread of contaminants and preserve product quality and safety.
- Maintenance checks are also required to identify and correct any potential equipment breakdowns or malfunctions before they result in costly downtime or product recalls. To guarantee that equipment is cleaned and maintained in accordance with industry standards and regulations, effective cleaning and maintenance programmes necessitate correct training, tools, and processes.

Ask

- Why is regular cleaning and maintenance important in the food processing industry?
- What are some of the risks associated with improper cleaning and maintenance of equipment?
- Can you describe the proper procedures for cleaning and sanitizing food processing equipment?
- What are some of the tools and materials used for cleaning and maintenance in the food processing industry?
- How can regular maintenance checks help to prevent equipment breakdowns and reduce downtime?
- What are the consequences of equipment failure in the food processing industry, and how can these consequences be prevented?

Notes for Facilitation

- Allow maximum participation to answer the questions.
- Explain the correct answers one by one

Explain

- Cleaning and Sanitizing Work area, machinery, tools, and equipment
- Cleaning Agents and Sanitizers Used for Cleaning
- Effective practices for sanitization
- Postproduction Cleaning of Work Area and Machinery
- Workflow Process for Cleaning Machinery and Equipment

Elaborate

- Elucidate why is cleaning and sanitizing important with the help of(Fig. 22.1 Reasons for Cleaning and Sanitizing), given in the Participant Handbook.

Activity

Brief

- Conduct a mock inspection of a processing line

Activity Description

- Students can work in groups and be provided with a checklist to inspect the line for cleanliness, damage or wear and tear, and compliance with industry regulations.
- The groups can then present their findings to the class and discuss any areas that need improvement or corrective action.
- This activity provides hands-on experience in inspecting equipment and facilities, reinforces the importance of proper cleaning and maintenance, and encourages teamwork and collaboration among students.

Debrief

- Request the class questions like, "What did we do in this activity" to summaries the experience. What did this activity teach us.

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23. Employability Skills

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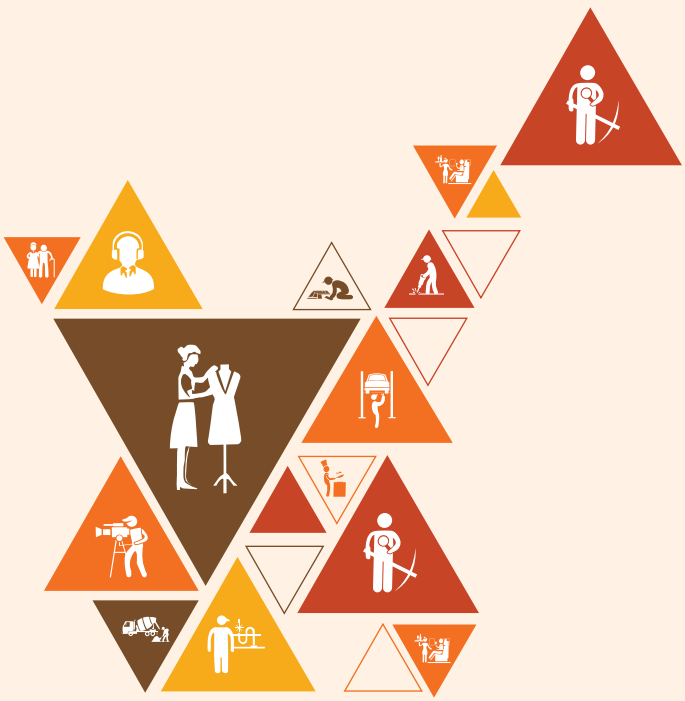

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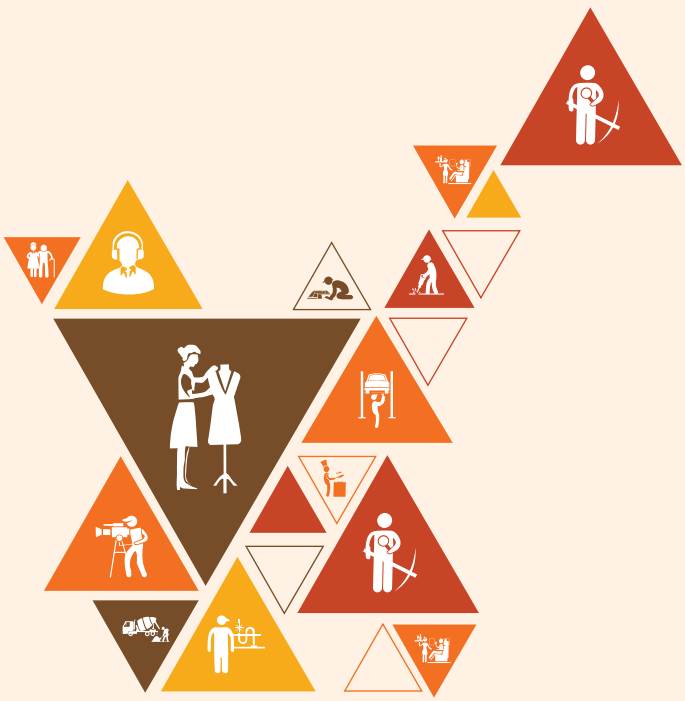
24. Annexures

Annexure - i (Training Delivery Plan)
Annexure - ii (Assessment Criteria)
Annexure - iii (QR Codes)



Annexure I
(Training Delivery Plan)

S No.	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools Aids	Duration
1	Introduction to Food Processing Sector and the Job of Fruit Pulp Processing Technician	Introductionntroducon to Food Processing Industry	Define food processing and fruits and vegetables processing	FIC/N0122	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 0
		Introducton to Food Processing Industry (Contd…)	Discuss the food processing industry in brief		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 0
		Introducton to Food Processing Industry (Contd…)	Explain the terminologies used in the process of food processing		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 0
		Career Opportunities for Fruit Pulp Processing Technician	Discuss the standard business etiquette and code of conduct In the food processing industry		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.3 P : 0
		Career Opportunities for Fruit Pulp Processing Technician (Contd…)	Discuss the career opportunities available to a fruit pulp processing technician in the food processing industry		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 0
2	Prepare for production	Production Planning process	Elucidate production planning process	FIC/N9026	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Production Planning process (Contd…)	Discuss analysis and interpretation of various process charts, product flow charts, etc.		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Production Planning process (Contd…)	Discuss the procedure to allot work or responsibility to the team.		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Production Planning process (Contd…)	Explain the resource management process		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Production Planning process (Contd…)	Calculate procedure to estimate manpower and raw material.		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Production Planning process (Contd…)	Explain the capacity utilization calculation.		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Equipment used in Fruit-pulp processing	List down equipment type and its use		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Cleaning and Maintenance	Discuss the organizational policies and SOP on cleanliness		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Cleaning and Maintenance (Contd…)	List down the basic concept of food safety and hygiene		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Cleaning and Maintenance (Contd…)	Describe the operating procedure and general maintenance of food production machinery		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Cleaning and Maintenance (Contd…)	State waste management procedures		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Cleaning and Maintenance (Contd…)	List down the methods to inspect tools, equipment, and machinery		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
3	Wash and Sort the Fruits for Processing	Wash and Sort Fruits	Discuss the significance and procedure of receiving and checking fruits from supplier or vendor for quality and quantity	FIC/N0122	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 2
		Wash and Sort Fruits (Contd…)	List the physical quality parameters of the fruits such as appearance, colour, texture, maturity, etc.		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 2
		Wash and Sort Fruits (Contd…)	Discuss the methods to monitor the temperature of fruits to be cooled to the required temperature		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2

S No.	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools Aids	Duration
		Wash and Sort Fruits (Contd…)	Elaborate on the standard operating procedure of a ladder conveyor		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Wash and Sort Fruits (Contd…)	Explain the Standard Operating Procedure (SOP) to wash fruits to start the process		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Wash and Sort Fruits (Contd…)	Discuss the visual inspection procedure for manually washed fruits		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
4	Peel, De-seed, and Destone the Fruits	Peeling, Coring, and Slicing of fruits	Elaborate on the standard operating procedure of the chopper/cutter/slicer machine	FIC/N0122	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 3
		Peeling, Coring, and Slicing of fruits (Contd…)	Explain the process of peeling or core removal of the fruits		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 3
		Peeling, Coring, and Slicing of fruits (Contd…)	State the significance of ensuring the removal of peel or core appropriately by monitoring the fruits emerging from the peeling or coring process		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 3
		Peeling, Coring, and Slicing of fruits (Contd…)	Discuss the SOP to cut fruits manually and dispose of the waste		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 3
5	Fruit Pulp Extraction and Pre-cooking of the Pulp	Fruit Pulp Extraction Process	Discuss the fruit pulp extraction process	FIC/N0122	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Fruit Pulp Extraction Process (Contd…)	State the importance of ensuring that collected pulp is free from seeds and fiber		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Fruit Pulp Extraction Process (Contd…)	Discuss the standard procedure to replace damaged or clogged filter screen of pulper cum finisher/pulper refiner machine		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 2
		Fruit Pulp Extraction Process (Contd…)	Discuss the methods to examine pre-cooked fruits pulp		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 2
		Fruit Pulp Extraction Process (Contd…)	Explain the control parameters (Pressure, temperature, cooking time, stirrer speed, etc.) of cooking tank as per standards		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 2
		Fruit Pulp Extraction Process (Contd…)	Describe the procedure to transfer the sample of the pulp to the quality lab as per standards		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 2
6	Aseptic Sterilization and Packing of Fruit Pulp	Aseptic Sterilization Process of Fruit Pulp	Discuss the control parameters (such as temperature, pressure, time, etc.) of the sterilizer to be maintained for sterilizing the fruit pulp	FIC/N0122	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 3
		Aseptic Sterilization Process of Fruit Pulp (Contd…)	Describe the procedure to monitor and maintain steam pressure		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 3
		Aseptic Sterilization Process of Fruit Pulp (Contd…)	State the significance of maintaining the temperature of the product surge tank until the marked filling level		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Aseptic Sterilization Process of Fruit Pulp (Contd…)	Discuss the operating procedure of aseptic packaging machineries, aseptic packaging process, and relevant parameters		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 2
		Aseptic Sterilization Process of Fruit Pulp (Contd…)	Explain the SOP for sending the filled aseptic bags to the storage area, and storing raw materials, and packaging material		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 2

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7	Can the Fruit Pulp	Fruit Pulp Canning Process and Packaging Activities	Discuss the canning process of the fruit pulp and the parameters to be considered for the process	FIC/N0122	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 2
		Fruit Pulp Canning Process and Packaging Activities (Contd...)	Discuss the operating procedure of canning machinery		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 2
		Fruit Pulp Canning Process and Packaging Activities (Contd...)	Describe the procedure to fill pulp into the cans		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 2
		Fruit Pulp Canning Process and Packaging Activities (Contd...)	Discuss the procedure to place a lid over the filled cans with a sealing machine or manually		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Fruit Pulp Canning Process and Packaging Activities (Contd...)	Discuss various types of packaging materials, and packaging machinery for fruit pulp		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Fruit Pulp Canning Process and Packaging Activities (Contd...)	Discuss standard quality parameters, basic food microbiology, and quality assessment of the fruit pulp based on physical parameters		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Fruit Pulp Canning Process and Packaging Activities (Contd...)	Discuss the SOP on storing finished goods		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Fruit Pulp Canning Process and Packaging Activities (Contd...)	State the importance of taking the canned fruit pulp samples for quality lab for analysis		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.3 P : 1
		Fruit Pulp Canning Process and Packaging Activities (Contd...)	Outline the scope of various standards as well as FSSAI laws and regulations on product, packaging, and labelling		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 1
8	Ensuring Food Safety and Personal Hygiene	Introduction to Food Safety	Identify types of hazards and risks at workplace	FIC/N9901	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Schedule IV Requirements of FSSAI	Identify requirements in Schedule IV in FSSAI		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Personal Hygiene	Identify types of health and safety policies and procedures		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Health Safety	Illustrate the concept of health safety		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Health Safety (Contd...)	Understand the hazards of health safety		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Health Safety (Contd...)	Explain the health and safety policies and procedures		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Health Safety (Contd...)	Describe the personal protective equipment		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Health Safety (Contd...)	Discuss the types of personal protective equipment		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Hazard, Risk and Accidents	Identify the types of hazards, risks as well as accidents		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Standard Practices and Precautions	Categorize the standard precautions and practices		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Uses of Electrical Equipment	Examine the utilization of the electrical equipment		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Usage of Personal Protective Equipment	Explore the usage of personal protective equipment		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1

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9	Managing Accidents and Emergencies	Organisational Protocols	Recognizing the organizational protocols	FIC/N9901	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Dealing with Toxics	Monitor the ways to handle the toxics		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Fire Prevention and Fire Extinguishers	Identify fire prevention and fire extinguisher		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Artificial Respiration and CPR	Evaluate CPR as well as the artificial respiration		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Rescue and Evacuation In Case Of Fire	Discuss the evacuation and rescue during a fire incident		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 0.4
		First Aid	Cataloguing the first aids		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 0.4
		Potential Injuries and Ill Health	Understanding the ill health as well as potential injuries		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 0.4
		Precautions in Mobility	Demonstration of the precautions in mobility		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 0.4
		Significance of various types of hazard and safety signs	Understanding the impact of various types of hazard and safety signs		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 0.4
10	Working Effectively in an Organization	Organizational Policies	Categorize the organizational policies	FIC/N9902	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Legislations, standard, policies, and procedures	Catalogue the Legislations, standards, policies, and procedures		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Reporting Structure	Analyse the reporting structure		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Inter-Dependent Functions	List the inter-dependent functions		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Harassment and Discrimination	Discuss the impact of harassment and discrimination		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Prioritising Tasks	Monitor the ways of prioritising the task		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Communication Skills	Record the types of communication skills		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Teamwork	Evaluate the ways of carrying out a teamwork		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Ethics and Discipline	Highlight the ethics and discipline		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Grievances Solution	Illustration of the grievance's solution		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Interpersonal Conflicts	Recognize the interpersonal conflicts		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Disabilities and Challenges	Identify the disabilities and challenges		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Gender Sensitivity and Discrimination	Identify the disabilities and challenges		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1

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		Applicable Legislation, Grievance Redressal Mechanisms	Discuss the applicable legislations, grievance redressal mechanisms		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Transacting With Others without Personal Bias	To administer with others without personal bias		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
11	Material Conservation	Material Handling	Identify the ways to handle materials	SGJ/N1702	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Workstation Layout, Electrical and Thermal Equipment	Categorize the workstation layouts, electrical and thermal equipment		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 1
		Organisational Procedures for Minimising Waste	List the organizational procedures for minimising waste		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 1
		Practices of Efficient and Inefficient Management	Analyse the practices of efficient and inefficient management		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Material and Water Usage	Discuss the material and water usage.		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
12	Energy and Electricity Conservation	Define Electricity	Define electricity	SGJ/N1702	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Basics of Electricity	State the basics of electricity		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Energy Efficient Devices	Identify the energy-efficient devices		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 1
		Standard Practices for Conserving Electricity	Explain the standard practices for conserving electricity		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 1
13	Waste Management and Recycling	Types of Waste	List the different types of waste	SGJ/N1702	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 2
		Waste Management and Disposal Solutions	Describe waste management and disposal solutions		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Pollution and Remedies	Explain pollution and its remedies		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
14	Extraction of Fruit Juice for Making Squash	Perform Fruit Juice Extraction Process	State the significance and procedure of interpreting and analysing the process chart, product flow chart, and formulation chart for the production process	FIC/N0103	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Perform Fruit Juice Extraction Process (Contd...)	Discuss the fruit juice extraction process		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Perform Fruit Juice Extraction Process (Contd...)	Explain the standard procedure to dispose of the waste produced while extracting the juice		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Perform Fruit Juice Extraction Process (Contd...)	Describe the physical parameters (such appearance, colour, consistency, flavour, taste, etc.) for checking the quality of extracted juice		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Perform Fruit Juice Extraction Process (Contd...)	Discuss the standard procedure to take and send the samples of the extracted fruit juice to quality lab for analysis		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Pasteurize and Clarify the Extracted Juice	State the significance of ensuring pasteurization of the cloudy juice immediately after pressing		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2

S No.	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools Aids	Duration
15	Pasteurization and Clarification of the Extracted Juice	Pasteurize and Clarify the Extracted Juice (Contd…)	Discuss the pasteurization process of the extracted juice	FIC/N0103	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Pasteurize and Clarify the Extracted Juice (Contd…)	State the importance of ensuring the uniform mixing of enzymes during the clarification process		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Pasteurize and Clarify the Extracted Juice (Contd…)	State the significance of pasteurizing and clarifying the juice		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Pasteurize and Clarify the Extracted Juice (Contd…)	Elaborate on basic food microbiology and quality assessment based on physical parameters		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
16	Prepare the Squash	Produce and Prepare Squash	Discuss the usage of refractometer in the squash preparing process	FIC/N0103	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Produce and Prepare Squash (Contd…)	Describe the procedure to measure the quantity of acids, preservatives, color, flavor, etc. to be mixed in a blending tank		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Produce and Prepare Squash (Contd…)	State the importance of observing the mixing process and collecting a sample, and check physical parameters to ensure uniform mixing of the fruit juice		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Produce and Prepare Squash (Contd…)	Describe the control parameters of pasteurizer or heat exchanger		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Produce and Prepare Squash (Contd…)	Discuss the procedure to prepare and clarify fruit juice squash		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
17	Fill, Pack and Store Juice and Squash	Filling, Packing and Storage of Juice and Squash	Discuss the procedure to transfer the finished product into the filling tank	FIC/N0103	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Filling, Packing and Storage of Juice and Squash (Contd…)	Elaborate the SOP to wash bottle/plastic containers to fill measured quantity of finished products		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Filling, Packing and Storage of Juice and Squash (Contd…)	List the control parameters of the packaging machine, like filling volume, batch code details, date of manufacture, best before date, etc.		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
18	Perform Post-Production Cleaning and Regular Maintenance of Equipment	Post-Production Cleaning and Regular Maintenance of Equipment	List the appropriate cleaning agents and sanitizers to clean the work area, machinery, tools, and equipment after squash production	FIC/N0103	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Post-Production Cleaning and Regular Maintenance of Equipment (Contd…)	Discuss the standard procedure and importance of cleaning and maintenance of all machines and equipment		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Production process of preparing Jam and Jelly	Elaborate on the operating procedure of cooking kettle or tank		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Production process of preparing Jam and Jelly (Contd…)	State the significance of stirring the pulp continuously during the heating process		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Production process of preparing Jam and Jelly (Contd…)	State the importance of achieving specified pressure and temperature while cooking the fruit pulp or fruit juice		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2

S No.	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools Aids	Duration
19	Prepare Jam and Jelly	Production process of preparing Jam and Jelly (Contd…)	Discuss the procedure and significance to check the quality of cooked product through physical parameters such as colour, appearance, texture, taste, etc. and to send the sample finished product for quality lab analysis	FIC/N0111	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Production process of preparing Jam and Jelly (Contd…)	Explain the procedure to transfer the finished product to the filling tank		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
20	Prepare the Ketchup	Production Process of Preparing Ketchup	List the ingredients used in preparing ketchup such as sugar, salt, spice powder, vinegar, etc.	FIC/N0111	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Production Process of Preparing Ketchup (Contd…)	Elaborate the procedure to prepare ketchup from the fruit pulp		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Production Process of Preparing Ketchup (Contd…)	Explain the method to test the viscosity of the ketchup using viscometer		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
21	Fill and Pack Jam, Jelly, and Ketchup	Operating Packaging Machine	Discuss the procedure to load and operate the packaging machine	FIC/N0111	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 3
		Operating Packaging Machine (Contd…)	State the importance of setti ng packaging machine for filling volume, speed, size, etc.		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 3
		Operating Packaging Machine (Contd…)	Elaborate the standard procedure to wash bottle/plastic containers to fill measured quantity of finished products		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Operating Packaging Machine (Contd…)	State the significance of spraying water on containers to cool and set product (setti ng in case of jam and jelly) or arrange filled jam/jelly containers in the rack for a specified time as per the standards		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Labelling and Coding	Elaborate the standard procedure to load labels in the labelling machine		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
		Labelling and Coding (Contd…)	Discuss the procedure to set date coding machine for a batch number, date of manufacture, date of expiry, etc.		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.5 P : 1
22	Post Production Cleaning and Regular Maintenance	Cleaning Activities and Maintenance Check	List the appropriate cleaning agents and sanitizers to clean the work area, machinery, tools, and equipment after jam, jelly, ketchup production and their uses	FIC/N0111	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 4 P : 6
		Cleaning Activities and Maintenance Check (Contd…)	Discuss the standard procedure and importance of cleaning and maintenance of all machines and equipment		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 4 P : 6
23	Employability Skills	23. Employability Skills	-	DGT/VSQ/N 0101	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 12 P : 18

Annexure - II
Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Plan for production	**11**	**25**	-	-
PC1. identify work requirements by obtaining instructions from the supervisor. Instructions: process chart, product flow chart, formulation,chart, etc.	3	6	-	-
PC2. plan and prioritize tasks as per work schedule.Tasks: inspect, clean, maintain, verify, etc.	2	5	-	-
PC3. estimate manpower and material requirements as per work requirement. Material: raw materials and packaging materials	2	4	-	-
PC4. ensure required quantity of raw materials, packaging materials, equipment, and manpower for production	2	5	-	-
PC5. plan capacity utilization of machinery with respect to the processing time, production order, and batch size f or each product	2	5	-	-
Clean and maintain work area, machineries, andtools for production	**14**	**32**	-	-
PC6. clean and maintain the work area as per organizational procedures	3	7	-	-
PC7. clean and maintain the machines and tools and sanitize them as per the organization's specifications and standards	3	7	-	-
PC8. dispose of the waste material at designated place safely. Waste material: hazardous waste, food waste, packaging waste, etc.	3	7	-	-
PC9. inspect the tools, equipment, and machinery to ascertain suitability for use	3	6	-	-
PC10. report information such as faulty tools and equipment to the concerned authority	2	5	-	-
Organize for production	**5**	**13**	-	-
PC11. organize tools and equipment	2	7	-	-
PC12. receive and organize production materials appropriately. Production materials: raw materials, packaging materials, etc.	2	4	-	-
PC13. allot responsibilities/work to the assistants and helpers	1	2	-	-

NOS Total	**30**	**70**	-	-
Wash and sort the fruits	**8**	**12**	-	-
PC1. dump fruits into the washing tank to remove dirt, soil, dust and unwanted sticky material, etc.	2	3	-	-
PC2. transfer fruits from the washing tank to the washing line conveyor using ladder conveyor	2	3	-	-
PC3. rinse fruits with a high-pressure spraying system	2	3	-	-
PC4. inspect and sort fruits visually and manually to remove damaged, blemished, and rotten fruits	2	3	-	-
Peel/De-seed/Destone the fruits	**10**	**10**	-	-
PC5. put sorted fruits in the peeler or corer (depending on the type of fruits)	1	1	-	-
PC6. remove the peel or core of the fruits	1	1	-	-
PC7. wash peeled fruits with pump water or open spraying system	1	1	-	-
PC8. observe the fruits emerging from the peeling/coring process and ensure removal of peel/core	2	1	-	-
PC9. dispose of or further process the peeled material/core separately as per organization standards, as appropriate	1	2	-	-
PC10. cut fruits manually in required size or load the fruits in the chopper/cutter/slicer machine	2	2	-	-
PC11. cut the fruit tip or peel manually, if required	2	2	-	-
Perform fruit pulp extraction and pre-cooking pulpactivities	**26**	**17**	-	-
PC12. extract pulp of the fruits using various machinery	2	2	-	-
PC13. collect the refined pulp in the collection tank	2	2	-	-
PC14. check collected pulp to ensure if it is free from seeds and fiber	2	1	-	-
PC15. replace damaged or clogged filter screen of pulper cum finisher/pulper refiner machine	2	1	-	-
PC16. transfer measured quantity of pulp from collection tank to steam jacketed kettle/ pre-cooking tank for cooking pulp	2	1	-	-

PC17. check pumped quantity through the level indicator and glass windows of the pre-cooking tank	2	1	-	-
PC18. set control parameters of cooking tank, as required. Set Controls: Pressure, temperature, cooking time, stirrer speed, etc.	2	1	-	-
PC19. examine pre-cooked fruits pulp through feel/texture	2	1	-	-
PC20. measure the brix with the help of refractometer	2	1	-	-
PC21. collect the pre-cooked pulp in the collection tank/ holding tank	2	2	-	-
PC22. take samples of the pulp and transfer it to the quality lab for analysis as per organizational standards. Analysis: Brix, pH, titratable acidity, etc.	2	2	-	-
PC23. transfer measured quantity of pre-cooked pulp into de-aeration tank to the de-aerate pulp	2	1	-	-
PC24. transfer measured quantity of de-aerated pulp into continuous evaporator for concentrating the pulp	2	1	-	-
Carry out aseptic sterilization and packing of fruit pulp	**14**	**20**	-	-
PC25. transfer measured quantity of pre-cooked/de- aerated and concentrated pulp into sterilization tank to sterilize pulp before aseptic packing	1	2	-	-
PC26. perform sterilization of the pre-cooked/de- aerated and concentrated pulp as per organizational standards. Adjust controls of the sterilizer: Temperature, pressure, time, etc.	2	2	-	-
PC27. monitor and maintain steam pressure by adjusting gauges to sterilize fruit pulp as per SOP	2	2	-	-
PC28. maintain the temperature of the product surge tank until the marked filling level	2	2	-	-
PC29. place plastic liners in the container such as drums, cartons, etc.	2	2	-	-
PC30. check the labelling details on the packaging material and place inside the liner for filling pulp. Details: Date of manufacture, date of expiry, batch code etc.	1	2	-	-
PC31. fix the spout of the aseptic bag to the filling nozzle of the machine	1	2	-	-

PC32. fill hot sterile product into the aseptic bag. Set controls: Pressure, temperature, filling volume, etc. and automatically seal/close with sterile closures	1	2	-	-
PC33. check for the required weight of the container and label the container along with the details. Details: Batch number, date of manufacture, date of expiry, volume/weight, etc.	1	2	-	-
PC34. transfer filled aseptic bags into the storage area and store them by maintaining storage conditions as per SOP	1	2	-	-
Can fruit pulp	**28**	**32**	-	-
PC35. operate can reformer, flanger, seamer, can body beader, and embossing machines to form cans	1	2	-	-
PC36. use machine-lift to raise stacked cans and transfers them to mechanical conveyor	2	2	-	-
PC37. observe passing cans and remove defective/damaged cans from the conveyor and discard them as per SOP	2	2	-	-
PC38. feed empty cans to conveyors leading to the washing, filling, and sealing machines. Set controls: Temperature, pressure, conveyor speed of empty can machine, etc.	2	2	-	-
PC39. perform sterilization process of the cans and collect sterilized cans and transfer them to the filling machine	2	2	-	-
PC40. place sterilized cans on conveyor/manually in the filling line conveyor	2	2	-	-
PC41. transfer pre-cooked/pre-heated pulp into the filling tank. Set control: Temperature, volume, agitator etc.	1	2	-	-
PC42. transfer filled cans to the can sealing machine or manually place a lid over the filled cans	2	2	-	-
PC43. load the canned product manually in metal baskets	2	2	-	-
PC44. sterilize the can to a specified temperature for specified time	2	2	-	-
PC45. cool the cans in cold water tank by operating the valves to circulate cold water in tanks and manually dry the cans or by adjusting the controls of dryer	1	2	-	-

PC46. inspect the cans for leakage and remove the leaked cans from the water tank for further re- use/discard	2	2	-	-
PC47. transfer the filled and cooled cans to the packaging machine	2	2	-	-
PC48. take samples of the canned product and send them to the quality lab for analysis	2	2	-	-
PC49. pack the labeled cans into cartons and transfer to the storage area and store them as per standard storage conditions	2	2	-	-
PC50. inform department supervisor on discrepancies/concerns for immediate action	1	2	-	-
Perform post-production cleaning and maintenance of equipment's	**4**	**4**	-	-
PC51. clean work area, machineries, equipment, and tools using recommended cleaning agents and sanitizers	2	1	-	-
PC52. attend minor repairs/faults of all the machines, if any	1	2	-	-
PC53. ensure periodic (daily/weekly/monthly/quarterly/ half-yearly/annual) maintenance of all machines and equipment as per standard	1	1	-	-
NOS Total	**90**	**95**	-	-
Ensure food safety and personal hygiene	**7**	**19**	-	-
PC1. follow relevant practices to avoid cross contamination at all stages of food processing operations	1	4	-	-
PC2. follow organisational procedures for handling items that may cause allergic reactions	1	4	-	-
PC3. follow Good Manufacturing Practices (GMP) at the workplace. Good Manufacturing Practices: location and layout (ergonomics), cleaning and sanitation, equipment and containers, pest control, facilities (lighting, water supply, drainage and waste disposal, air quality and ventilation), food storage, transportation, and distribution (Source: Schedule IV, FSSAI Licensing and Registration, 2011)	3	7	-	-

PC4. follow Good Hygiene Practices (GHP) at the workplace appropriately. Good Hygiene Practices: use of gloves, hairnets, masks, ear plugs, goggles, shoes etc; washing hands regularly; treating injuries such as cuts, boils, skin infections and grazes; preventive health check-ups ; getting vaccinated whenever required. (Source: Schedule IV, FSSAI Licensing and Registration, 2011)	2	4	-	-
Follow safety measures to avoid accidents	**11**	**24**	-	-
PC5. use protective clothing/equipment for specific tasks and work conditions	2	4	-	-
PC6. identify job-site hazardous work and possible causes of risk or accident at the workplace	2	4	-	-
PC7. deal with hazards safely and appropriately to ensure safety of self and others as per organisational protocol	2	4	-	-
PC8. use various types of fire extinguishers effectively	2	4	-	-
PC9. respond promptly and appropriately to an accident situation or medical emergency	1	4	-	-
PC10. provide cardio-pulmonary resuscitation (CPR) as per the requirement (e.g. cardiac arrest)	2	4	-	-
Follow emergency procedures	**6**	**12**	-	-
PC11. follow workplace emergency and evacuation procedures	2	4	-	-
PC12. use safe methods to free a person from electrocution	2	4	-	-
PC13. administer appropriate first aid to victims in case of cuts, bleeding, burns, choking, electric shock, poisoning etc.	2	4	-	-
Manage infection control	**6**	**15**	-	-
PC14. use appropriate disinfectants to disinfect the work area and equipment as per organisational protocol	3	7	-	-
PC15. ensure personal hygiene by washing hands regularly using alcohol based sanitisers and wearing personal protective equipment (PPE)	1	4	-	-

PC16. report illness of self and others to the supervisor or concerned authority	2	4	-	-
NOS Total	**30**	**70**	-	-
Communicate effectively	**8**	**13**	-	-
PC1. obtain complete information and instructions from designated personnel	2	3	-	-
PC2. reciprocate understanding and seek clarifications whenever required	2	3	-	-
PC3. provide information accurately and clearly	2	3	-	-
PC4. use inclusive language (verbal, non- verbal and written) that is gender, disability and culturally sensitive	2	4	-	-
Work in a team effectively	**8**	**14**	-	-
PC5. plan tasks to be performed as per priority and need	2	4	-	-
PC6. consult with and assist others to maximize effectiveness and efficiency at work	2	3	-	-
PC7. escalate problems and grievances beyond own scope to the concerned authority	2	3	-	-
PC8. take appropriate action to resolve conflicts at the workplace	2	4	-	-
Respect diversity	**6**	**12**	-	-
PC9. maintain a gender-neutral behaviour with everyone at the workplace	2	4	-	-
PC10. empathise with People with Disabilities (PwD) and offer help, if required	2	4	-	-
PC11. recognise and report incidents of harassment and discrimination to appropriate authority	2	4	-	-
NOS Total	**22**	**39**	-	-
Material conservation practices	**4**	**8**	-	-
PC1. identify ways to optimize usage of material including water in various tasks/activities/processes	1	2	-	-
PC2. check for spills/leakages in various tasks/activities/processes	1	2	-	-

PC3. plug spills/leakages and escalate to appropriate authority if unable to rectify	1	2	-	-
PC4. carry out routine cleaning of tools, machines and equipment	1	2	-	-
Energy/electricity conservation practices	**4**	**8**	-	-
PC5. identify ways to optimize usage of electricity/energy in various tasks/activities/processes	1	2	-	-
PC6. check if the equipment/machine is functioning normally before commencing work and rectify wherever required	1	2	-	-
PC7. report malfunctioning (fumes/sparks/emission/ vibration/noise) and lapse in maintenance of equipment	1	2	-	-
PC8. ensure electrical equipment and appliances are properly connected and turned off when not in use	1	2	-	-
Effective waste management/recycling practices	**5**	**10**	-	-
PC9. identify recyclable and non-recyclable, and hazardous waste generated	1	2	-	-
PC10. segregate waste into different categories	1	2	-	-
PC11. dispose non-recyclable waste appropriately	1	2	-	-
PC12. deposit recyclable and reusable material at identified location	1	2	-	-
PC13. follow processes specified for disposal of hazardous waste	1	2	-	-
NOS Total	**13**	**26**	-	-
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	-	-	-	-
NOS Total	**20**	**30**	-	-
Perform fruit juice extraction process	**10**	**10**	-	-
PC1. grind the fruits like apple and pear into fine gratings	-	-	-	-
PC2. collect sliced/grated fruits from the discharge chute	-	-	-	-
PC3. extract juice from the fruit extractor	-	-	-	-
PC4. collect juice flowing though the discharge outlet in collection tank, and remove peel and seeds simultaneously	-	-	-	-
PC5. measure enzymes required for each batch as per the formulation chart	-	-	-	-
PC6. perform enzyme activity of the cut/grated fruits as per SOP	-	-	-	-
PC7. press the enzyme treated fruits such as apple, pear etc. using the pressing machine	-	-	-	-
PC8. • transfer fruit juice to filter and collect it in collection tank check the quality of extracted juice through physical parameters • Physical parameters: Appearance, colour, consistency, flavour, taste, etc.	-	-	-	-
PC9. take samples of the extracted juice and send them to quality lab for analysis	-	-	-	-
PC10. concentrate fruit juice and recover aroma (aroma stripping)	-	-	-	-
Pasteurize the extracted juice	**10**	**10**	-	-
PC11. • monitor the process parameters of the pasteurizer • Process parameters: Pressure, temperature, flow rate, time, etc.	-	-	-	-
PC12. ensure cloudy juice are pasteurized immediately after pressing	-	-	-	-

PC13. heat up raw incoming juice by allowing the pasteurized juice to pass through heat exchangers	-	-	-	-
PC14. circulate water through heat exchangers to cool pasteurized juice	-	-	-	-
Clarify the juice	**10**	**10**	-	-
PC15. measure enzymes required for the clarification of juice as per the formulation chart	-	-	-	-
PC16. add the required enzymes to the pasteurized juice in the collection tank (for obtaining clear juice)	-	-	-	-
PC17. ensure uniform mixing of enzymes	-	-	-	-
PC18. allow enzyme treated juice to pass through ultra-filtration unit to remove smallest particles and obtain clear juice	-	-	-	-
PC19. • check quality of juice through physical parameters • Physical parameters: Colour, appearance, flavour, taste, etc.	-	-	-	-
PC20. take and send the samples from the production line to the lab for quality analysis such as pH, acidity, etc. and ensure conformance to the standards	-	-	-	-
PC21. fill up processed juice into the holding/reservoir tanks and store them as per standard storage practices for further processing or packaging	-	-	-	-
Prepare squash	**11**	**12**	-	-
PC22. prepare sugar syrup by measuring the sugar and water as defined in the formulation (add acids if specified in the formulation)	-	-	-	-
PC23. add sugar syrup into the kettle/tank and turn on mixer/agitator with a controlled speed to mix the ingredients	-	-	-	-
PC24. • admit steam into kettle/tank by opening the valves and set controls of the tank to heat the solution as per SOP • Controls: Pressure, temperature and time	-	-	-	-
PC25. check sugar syrup brix using refractometer instrument to conform its specifications to standards	-	-	-	-
PC26. remove undesirable particles and sediments from the sugar syrup through the process of filtration	-	-	-	-

PC27. collect filtered sugar syrup in storage/ holding tanks	-	-	-	-
PC28. carry out blending process of the juice concentrate or clarified juice	-	-	-	-
PC29. add measured quantity of acids, preservatives, color, flavor, etc. into the blending tank as per the SOP	-	-	-	-
PC30. • start the mixer after setting the controls of stirrer/agitator • Controls of stirrer/agitator: Mixing speed, mixing time, etc.	-	-	-	-
PC31. observe mixing process and collect sample and check physical parameters to ensure uniform mixing	-	-	-	-
PC32. adjust controls to set temperature, pressure, etc. of pasteurizer/heat exchanger	-	-	-	-
PC33. transfer blended product into pasteurizer/heat exchanger	-	-	-	-
PC34. control process parameters and open valves to allow water to pass thorough heat exchanger to cool product	-	-	-	-
PC35. collect finished product in storage tank	-	-	-	-
PC36. • check the quality of finished product through physical parameters • Physical parameters: Appearance, colour, consistency, flavour, taste, etc	-	-	-	-
PC37. take samples and send to the quality lab for analysis to ensure conformance to standards	-	-	-	-
Fill, pack and store juice and squash	**6**	**5**	-	-
PC38. transfer finished product into the filling tank of packaging machine	-	-	-	-
PC39. • load packing materials (tetra packs, glass bottles, plastic containers, etc.) in packaging machine, sealing materials (caps, lids, crowns, etc.) in sealing machine, and labels in labelling machine. • Packing material: Tetra packs, glass bottles, plastic containers, caps, lids, crowns, labels, etc. • Set Controls of the packaging machine: Filling volume, batch code details, date of manufacture, best before date, etc.)	-	-	-	-

PC40. fill bottle/plastic containers to measured quantity of finished products	-	-	-	-
PC41. close/seal and label and check the weight of packed product periodically to ensure conformance to standards	-	-	-	-
PC42. place packed and labelled products in cartons and transfer to storage area as per SOP	-	-	-	-
PC43. report discrepancies/concerns to department supervisor for immediate action	-	-	-	-
Carry out post-production cleaning and regularmaintenance of equipments	**3**	**3**	-	-
PC44. clean the work area, machineries, equipment and tools using approved cleaning agents and sanitizers	-	-	-	-
PC45. attend minor repairs/faults of all machines, if any	-	-	-	-
PC46. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment as per the SOP or supplier's instructions/manuals	-	-	-	-
NOS Total	**50**	**50**	-	-
Prepare jam and jelly	**19**	**24**	-	-
PC1. transfer measured quantity of fruit pulp/juice from the holding tank/container into cooking kettle/tank for preparing jam/jelly (pulp of various fruit as per formulation for preparing mixed fruit jam)	-	-	-	-
PC2. heat fruit pulp/fruit juice to the required temperature and concentration	-	-	-	-
PC3. stir the pulp continuously to avoid sticking/scorching	-	-	-	-
PC4. monitor pressure and temperature gauge and adjust controls to achieve specified pressure and temperature to cook fruit pulp / fruit juice	-	-	-	-
PC5. transfer measured quantity of water into pre- mixing tank	-	-	-	-
PC6. measure specified quantity of pectin/gelatin and water as per formulation and add to the pre-mixing tank with uniform stirring to prepare pectin/gelatin solution	-	-	-	-
PC7. measure and add the ingredients into pulp/juice in the kettle/tank for the batch preparation as per the formulation chart	-	-	-	-

PC8. • operate the cooker and set the controls of cooker. • Controls: Temperature, pressure, etc.	-	-	-	-
PC9. transfer the solution at a specific brix and temperature into the cooker for cooking at higher temperature and pressure	-	-	-	-
PC10. observe the cooking process and check the product in refractometer to ensure completeness of cooking process	-	-	-	-
PC11. check the quality of cooked product through physical parameters such as colour, appearance, texture, taste, etc.	-	-	-	-
PC12. take sample and send to the quality lab for analysis	-	-	-	-
PC13. transfer the heated product manually/automatically into hopper of the bottled Jam/jelly packaging	-	-	-	-
PC14. transfer heated product manually/automatically into the hopper of filling/moulding machine of jelly making	-	-	-	-
PC15. monitor the moulding process and inspect the jellies for shapes, sizes and weights as per organizational standards and adjust the controls, as required	-	-	-	-
PC16. adjust the speed of cooling conveyor & fans and cool the moulded jellies to an appropriate temperature for packaging	-	-	-	-
PC17. inspect the defective jellies and re-use them as a rework in specified quantity and heat with the pulp (discard the foreign matter contaminated jellies with organizational procedure)	-	-	-	-
PC18. transfer the good jellies to the packaging machine either automatically through packing conveyors or manually by crates/containers	-	-	-	-
Prepare ketchup	**10**	**13**	-	-
PC19. transfer measured quantity of tomato pulp/puree from holding tank/ container to cooking kettle	-	-	-	-
PC20. heat tomatoes paste to required temperature and thickness by opening the valves to admit steam through the kettle or light burner with continuous stirring to avoid sticking/scorching or stir manually	-	-	-	-
PC21. measure ingredients such as sugar, salt, spice powder, vinegar, etc. required for batch as per the formulation chart	-	-	-	-

PC22. add the measured ingredients as per the sequence into the tomato pulp/puree in kettle following SOP and continue pre-cooking	-	-	-	-
PC23. observe pre-cooking process and check the quality of pre-cooked product through feel, consistency, refractometer, colour, etc.	-	-	-	-
PC24. transfer pre-cooked material at a specific brix and temperature into the cooker for cooking at higher temperature and pressure	-	-	-	-
PC25. observe the cooking process and check the product in refractometer to ensure completeness of cooking process	-	-	-	-
PC26. check the quality of cooked product through physical parameters such as colour, appearance, texture, taste, etc.	-	-	-	-
PC27. take the sample and send it to the quality lab for analysis and conformance to standards	-	-	-	-
PC28. transfer product into filling tank/hopper of the packaging machine or manually filling hot product in packaging containers	-	-	-	-
Fill and pack jam, jelly and ketchup	**18**	**10**	-	-
PC29. transfer the heated jam/jelly/moulded jelly/heated ketchup into the packaging machine to pack jam/jelly/ketchup by operating valves and pump	-	-	-	-
PC30. load packing materials such as glass bottle, plastic bottle, pouches, laminates, Jars, etc. and sealing materials such as lid, closures, etc. on packaging machines	-	-	-	-
PC31. set packaging machine for filling volume, speed, size etc.	-	-	-	-
PC32. start automatic packaging machine for forming, washing bottles, filling, sealing container (or) fill measured quantity of hot product in packaging containers, place lid and close manually or mechanically	-	-	-	-
PC33. start machine to fill hot products/jellies in the container/jars/laminates/bottles and check weight of packed products periodically to ensure its conformance to standards	-	-	-	-
PC34. spray water on containers to cool and set product (setting in case of jam and jelly) or arrange filled jam/jelly containers in rack and allow to stand for specified time following SOP to cool	-	-	-	-

PC35. • dry the cooled bottles by allowing the cooled bottles to pass through the drying tunnel by setting controls of air dryer before labelling • Set controls: Air temperature, air flow rate, etc.	-	-	-	-
PC36. load labels in labelling machine, set date, batch coding, date of manufacture, best before date, etc.	-	-	-	-
PC37. place the packed and labelled products in cartons and transfer to storage area maintaining storage conditions as pe r the SOP	-	-	-	-
PC38. report discrepancies/concerns to department supervisor for immediate action	-	-	-	-
Carry out post-production cleaning and regularmaintenance of equipment	**3**	**3**	-	-
PC39. clean the work area, machineries, equipment and tools using approved cleaning agents and sanitizers	-	-	-	-
PC40. attend minor repairs/faults of all machines (if any)	-	-	-	-
PC41. ensure periodic (daily/weekly/ monthly/quarterly/ half yearly/ annual) maintenance of all machines and equipment as per the SOP or supplier's instructions/manuals	-	-	-	-
NOS Total	**50**	**50**	-	-

Annexure - III
QR Code

Serial No.	Module No.	Unit Number	Topic Name	Page No.	URL	QR Code
1.	Module-1 Introduction to Food Processing Sector and the Job of Fruit Pulp Processing Technicia	Unit 1.1 Introduction to Food Processing Industry	Overview of Food Processing Industry	9	https://www.youtube.com/watch?v=J-2EiMVNtpM&t=5s	
2.			Overview of Fruit and vegetables industry	9	https://www.youtube.com/watch?v=hW10tq2fWfY	
3.			Orientation video of fruit pulp	9	https://www.youtube.com/watch?v=TC1mGaWoyXk	
4.		Unit 1.2 Career Opportunities for Fruit Pulp Processing Technician	Roles and responsibility of Pulp Making technician	14	https://www.youtube.com/watch?v=F4qEpbldAks	
5.	Module-2 Prepare for production	Unit2.3 - Cleaning and Maintenance	Waste Disposal	43	https://www.youtube.com/watch?v=nrEOtxjwKsQ&t=24s	

Serial No.	Module No.	Unit Number	Topic Name	Page No.	URL	QR Code
6.			Cleaning and sanitation	43	https://www.youtube.com/watch?v=QWpU7DAfNcs&t=2s	
7.			Cleaning facilities	43	https://www.youtube.com/watch?v=CD0XLUutibk	
8.			Maintenance	43	https://www.youtube.com/watch?v=tRAnusofqJ8&t=48s	
9.	Module-5 Fruit Pulp Extraction and Pre-cooking of the Pulp	Unit 5.1 Fruit Pulp Extraction Process	Fruit pulp making process	79	https://www.youtube.com/watch?v=VEutWeSg23k	
10.			Guava Pulp processing	79	https://www.youtube.com/watch?v=ad1WZGA6ZBo	
11.			Grape pulp processing	79	https://www.youtube.com/watch?v=supESo8qnjo	

Serial No.	Module No.	Unit Number	Topic Name	Page No.	URL	QR Code
12.	Module-7 Can the Fruit Pulp	Unit 7.1 Fruit Pulp Canning Process	Packaging and storage of fruit pulp	100	https://www.youtube.com/watch?v=qHgUc6rvm7c	
13.	Module-8 Ensuring Food Safety and Personal Hygiene	Unit 8.2 - Schedule IV requirements of FSSAI	Introduction to schedule 4 Part1	127	https://www.youtube.com/watch?v=9Vjyi0GhVGA	
14.			Introduction to schedule 4 Part2	127	https://www.youtube.com/watch?v=shAjoTniul0	
15.			Basic storage and transportation	127	https://www.youtube.com/watch?v=GwGeTWYI0oY	
16.			Internal structure and fittings	127	https://www.youtube.com/watch?v=1tk145A3idI	
17.			GHP,GMP and FSMS	127	https://www.youtube.com/watch?v=RS4A-uczS6E&t=432s	

Serial No.	Module No.	Unit Number	Topic Name	Page No.	URL	QR Code
18.		Unit 8.4 - Health Safety	Personnel Hygiene and personnel behaviour	134	https://www.youtube.com/watch?v=gNEx8P9UqPA&t=35s	
19.	Module-16 Prepare the Squash	Unit 16.1 Production Process of Squash	Lime squash processing	249	https://www.youtube.com/watch?v=RliVo_wVFEQ	
20.	Module-19 Prepare Jam and Jelly	Unit 19.1 Production process of preparing Jam and Jelly	Apple jam Processing	280	https://www.youtube.com/watch?v=ZozA1gHNoDA	
21.			Orange jelly processing	285	https://www.youtube.com/watch?v=zThmD6nrrRA	
22.	Module-20 Prepare the Ketchup	Unit 20.1 Process of Preparing Ketchup	Tomato ketchup processing	295	https://www.youtube.com/watch?v=elqc7aqx_lA	
23.	Employability Skills		Employability Skills - 30 Hours	324	https://eskillindia.org/NewEmployability	

Notes

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