



Facilitator Guide



Sector
Food Processing

Sub-Sector
Fruits and Vegetables

Occupation
Processing

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Squash and Juice Processing Technician

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Shri Narendra Modi
Prime Minister of India

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

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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 'Squash and Juice 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 Squash and Juice 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/N0101: Evaluate and develop entrepreneur skills Prepare and Maintain Work Area and ProcessMachineries for Squash and Juice Processing
2. FIC/N0102: Prepare for Production of Squash and Juice
3. FIC/N0103: Produce Squash and Juice
4. FIC/N9001: Food and Safety, Hygiene and Sanitation
5. FIC/N0104: Complete Documentation and Record Keeping Related to Production of Squash and Juice
6. 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

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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.

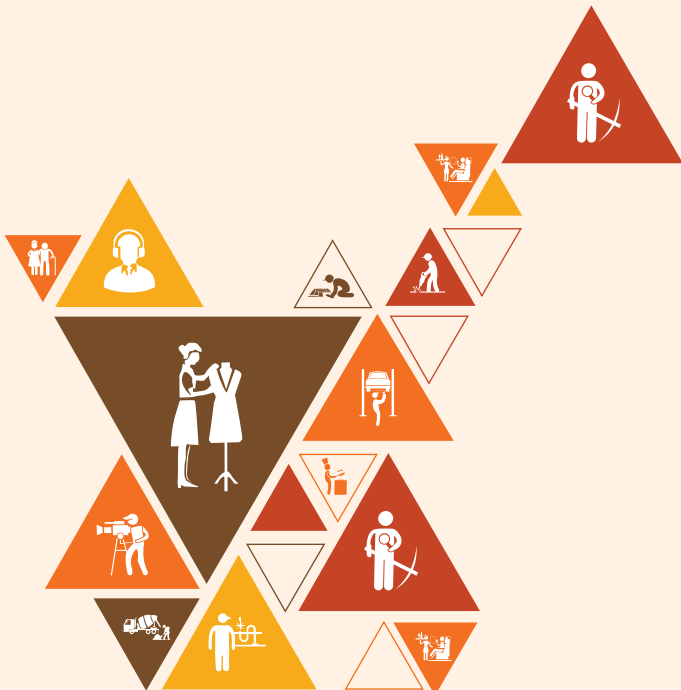
Adopt the basic etiquette during training

- 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.



1. Introduction

- Unit 1.1 – Introduction to the Training Programme
- Unit 1.2 – Introduction to the Food Processing Industry
- Unit 1.3 – Introduction to Fruit and Vegetable Processing
- Unit 1.4 – Introduction to Squash and Juice
- Unit 1.5 – Attributes of a Squash and Juice Processing Technician



FIC/N0101

Key Learning Outcomes



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

- Explain the purpose of training.
- Discuss the National Occupational Standards and Qualification Pack.
- Define food processing.
- List the various sectors of the food processing industry.
- Describe the various stages of food processing for converting raw materials to food products.
- State the need for fruit and vegetable processing.
- State the common methods of fruit and vegetable processing.
- List the various sub-sectors of beverage industry.
- List the various fruit drinks.
- Define fruit juice and its types.
- Define squash.
- List the various fruits used for making squash and juice.
- State the roles and responsibilities of a squash and juice 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 Training Program

Unit Objectives

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

- Explain the purpose of the training
- Discuss the National Vocational Standards and Qualification Pack

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 squash and juice:
 - What are some health benefits of consuming squash regularly?
 - How does the nutritional value of freshly prepared juice compare to store-bought juice?
 - What are some popular squash varieties that are commonly used in cooking and juicing?
- Conduct a group activity to introduce the training programme is developed to impart specific skills to be a Squash and Juice Processing Technician.
- Initiate a discussion and explain how harvested produce reaches the consumer.
- Discuss the purpose and benefits of the training programme in squash and juice processing.
- Recall the QP and NOS.
- Explain the training programme is intended for imparting basic skill and knowledge relevant to the job role, required to perform at a Squash and Juice Processing Technician.

Say

- The training programme in Squash and Juice is designed to provide individuals with the knowledge and skills required to become proficient in both squash and juice preparation.

Ask

- Clarify the Purpose of training.
- What is the QP and NOS?

Notes for Facilitation



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

Explain



- Explain the Purpose of training
- Explain the QP and NOS

Elaborate



- Elucidate the Skill cards with the help of (figure 1.1.1), given in the participant handbook
- Show the NOS code and Major Function/Task.

Activity



Brief

- Each group must come up with a purpose of training in Squash and Juice processing.

Activity Description

- Divide the class into groups of 4-5 participants.
- Discuss the purpose of training.
- The Qualification Pack Code for squash and juice processing technician is FIC/Q0101. This is also called a QP.
- 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 that.

Debrief

- Summarize the list of purpose of training in Squash and Juice processing.
- Add more products to the list with local examples.

Unit 1.2 - Introduction to the Food Processing Industry

Unit Objectives

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

- Define food processing
- List the various sectors of the food processing industry
- Describe the various stages of food processing for converting raw materials to food products

Resources to be Used

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

Do

- Explain the food processing, and procure an overview of the food processing industry in India?
- Talk about the different sub-sectors within the food processing industry.
- Conduct a group activity to introduce the participants to the products developed within various subsectors.
- Discuss the journey of food from harvest to consumer.

Say

- The agriculture Industry is the biggest in India. Divided into 3 major processing sectors:
 1. Primary Sector
 2. Secondary Sector
 3. Tertiary Sector

Ask

- Clarify the Food Processing within different sectors.
- What is the journey of food from harvest to consumer?

Notes for Facilitation



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

Explain



- Explain the Food processing.
- Describes the journey of food from harvest to consumer.

Elaborate



- Elucidate the Sub-sectors of food processing industry with the help of (figure 1.2.1), given in the participant handbook.
- Elucidate the Journey of harvested food with the help of (figure 1.2.2), 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 2 groups.
- 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 that.
- Describe the journey of harvest food.

Debrief

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

Unit 1.3 - Introduction to Fruit and Vegetable Processing

Unit Objectives

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

- State the different sub-sectors of fruits and vegetable industry
- State the common methods of fruit and vegetable processing

Resources to be Used

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

Do

- What is fruits and vegetable processing, and procure an overview of the food processing industry in India?
- Talk about the different sub-sectors within the fruits and vegetable industry.
- Conduct a group activity to introduce the participants to the products developed within various subsectors.
- Discuss the method of fruits and vegetable processing.

Say

- When choosing a fruit or vegetable for processing, there are a few factors to keep in mind.
 - Demand for processed food made from that vegetable/fruit
 - High quality produce
 - Continuous supply
 - Huge supply in case of seasonal fruits/vegetables.

Ask

- What are the fruits and vegetable processing within different sectors?
- What is method of fruits and vegetable processing?

Notes for Facilitation



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

Explain



- Explain the method of fruit and vegetable processing.

Elaborate



- Elucidate the Juices with the help of (figure 1.3.1), given in the participant handbook
- Elucidate the Jellies with the help of (figure 1.3.2), given in the participant handbook
- Elucidate the Pulpes with the help of (figure 1.3.3), given in the participant handbook
- Elucidate the Jams with the help of (figure 1.3.4), given in the participant handbook
- Elucidate the Frozen foods with the help of (figure 1.3.5), given in the participant handbook
- Elucidate the Wafers with the help of (figure 1.3.6), given in the participant handbook
- Elucidate the Pickles with the help of (figure 1.3.7), given in the participant handbook
- Elucidate the Drying with the help of (figure 1.3.8), given in the participant handbook
- Elucidate the Concentration with the help of (figure 1.3.9), given in the participant handbook
- Elucidate the Heating with the help of (figure 1.3.10), given in the participant handbook
- Elucidate the Fermentation with the help of (figure 1.3.11), given in the participant handbook
- Elucidate the Sterilisation with the help of (figure 1.3.12), given in the participant handbook
- Elucidate the Canning with the help of (figure 1.3.13), given in the participant handbook

Activity



Brief

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

Activity Description

- Divide the class into 2 groups.
- Assign a sub-sector to each group.
- Give the groups enough time to discuss the processed fruits and vegetable developed within the sub-sector allotted to them. Also, ask them to list the names of popular brands for that produce.
- Fresh fruits and vegetables need to be thoroughly cleaned and washed to remove dirt, debris, and any harmful microorganisms.
- Various preservation techniques are used to extend the shelf life of processed fruits and vegetables. These include canning, freezing, drying, and pickling.

Debrief

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

Unit 1.4 - Introduction to Squash and Juice

Unit Objectives

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

- List the various sub-sectors of beverage industry
- List the various fruit drinks
- Define fruit juice and its types
- Define squash
- List the various fruits used for making squash and juice

Resources to be Used

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

Do

- Discuss the various types of fruits drinks in food processing industry.
- Talk about the different sub-sectors within the food beverage industry.
- Conduct a group activity to introduce the participants to the products developed within various subsectors.
- Discuss the types of fruit juice.
- Explain the squash.
- Describe the various fruits used for making squash and juice.

Say

- Fruit drinks are alcoholic beverages prepared from fruit. the following categories of fruit beverages:
 - Juice
 - Concentrates and pulps
 - Ready To Serve (RTS)
 - Nectars
 - Squashes
 - Cordials
 - Syrups
 - Crush

Ask

- Explain the types of juices?
- What is Squash?
- What is fruit juice and its types?

Notes for Facilitation

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

Explain

- Explain Food Beverage Industry.
- Describe the fruit juice and its types.
- Discuss the various fruit drinks.
- What is squash?

Elaborate

- Elucidate the Sub-sectors and its products with the help of (table 1.4.1), given in the participant handbook
- Elucidate the Difference between natural and sweetened juice with the help of (table 1.4.2), given in the participant handbook
- Elucidate the Types of juice made from fruits with the help of (table 1.4.3), 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 beverage industry.

Activity Description

- Divide the class into 2 groups.
- Assign a sub-sector to beverage industry.
- 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.
- Discuss the types of juice and its types.
- Difference between natural and sweetened juice.

Debrief

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

Unit 1.5 - Attributes of a Squash and Juice Processing Technician

Unit Objectives

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

- State the roles and responsibilities of a squash and juice processing technician

Resources to be Used

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

Do

- Discuss the role and responsibilities of a squash and juice processing technician.

Say

- A squash and juice processing technician is responsible for operating and maintaining the processing equipment used in the production of squash and juice products. This includes machines used for washing, cutting, grinding, pressing, filtering, pasteurizing, and packaging.

Ask

- What are the roles and responsibilities of a squash and juice processing technician?

Notes for Facilitation

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

Explain

- Explain the Roles and Responsibilities of a squash and juice processing technician.

Elaborate



- Elucidate the Roles and responsibilities with the help of (figure 1.5.1), given in the participant handbook

Activity



Brief

- Each group must develop a list of roles and responsibilities of a squash and juice processing technician.

Activity Description

- Divide the class into 2 groups.
- Ask one group to list the roles.
- Ask the other group to list the responsibilities.
- Now, ask the groups to select one person from themselves who would write down the board's list of roles and responsibilities.
- When that participant comes to the board, other group members tell him the list of products they have thought of.
- Add to the list if any roles and responsibilities are missed and finalise the roles on the board.

Debrief

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

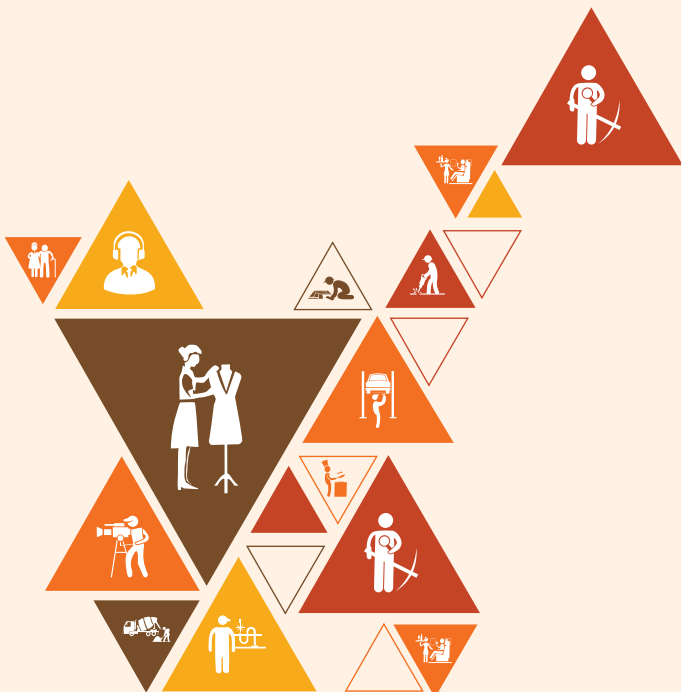


2. Prepare and Maintain Work Area and Process Machineries for Squash and Juice Processing

Unit 2.1 Equipment Used for Fruit Pulping

Unit 2.2 Sanitisation of Work Area

Unit 2.3 Cleaning Processes



FIC/N0101

Key Learning Outcomes



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

- Identify the different equipment, tools, and machineries used for food processing
- State the materials and equipment used in cleaning and maintenance of the work area and machineries
- List the various cleaning chemicals required
- State the cleaning processes used to clean the work area and process machineries.

Unit 2.1 - Equipment Used for Fruit Pulping

Unit Objectives

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

- Identify the different equipment, tools, and machineries used for food processing

Resources to be Used

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

Do

- Discuss the different equipment, tools, and machineries used for food processing
- Explain the equipment used in a pulp-processing.
- Start a discussion by requesting information from participants regarding the equipment they have seen.
- Write the names of the pieces of food pulping equipment on the board.
- If the name of the equipment was omitted, add it.
- Explain to the attendees that a food processing must do routine machine maintenance checks. Its goal is to ensure that the fruits and vegetables equipment runs smoothly.
- Describe some safety precautions that must be taken when using the equipment.

Say

- There are multiple pieces of equipment used in a pulp-processing:
 - Ripening chamber
 - Fruit washing machine
 - Sorting and grading machine
 - Peeler
 - Core cutter
 - Crusher/chopper/shredder
 - Blancher/hot break system
 - Bottle filling machines and etc.

Ask

- What is the equipment used for fruit pulping processing?

Notes for Facilitation

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

Explain

- Explain the equipment used in the food processing industry.

Elaborate

- Elucidate the Ripening chamber with ethylene doser with the help of (figure 2.1.1), given in the participant handbook
- Describe the Fruit washing machine with the help of (figure 2.1.2), given in the participant handbook
- Describe the Sorting and grading machine with the help of (figure 2.1.3), given in the participant handbook
- Describe the Conveyor belt with the help of (figure 2.1.4), given in the participant handbook
- Elucidate the Peeler with the help of (figure 2.1.5), given in the participant handbook
- Elucidate the De-seeder/de-stoner with the help of (figure 2.1.6), given in the participant handbook
- Elucidate the Blancher/hot break system with the help of (figure 2.1.7), given in the participant handbook
- Elucidate the Juice extractor/hydraulic press/continuous press/filter press with the help of (figure 2.1.8), given in the participant handbook
- Elucidate the Evaporator/concentrator with the help of (figure 2.1.9), given in the participant handbook
- Elucidate the Pasteuriser with the help of (figure 2.1.10), given in the participant handbook
- Elucidate the Clarifier/ultra-filtration unit with the help of (figure 2.1.11), given in the participant handbook
- Elucidate the Aseptic filler with the help of (figure 2.1.12), given in the participant handbook
- Elucidate the Holding tank/reservoir tank with the help of (figure 2.1.13), given in the participant handbook
- Elucidate the Bottle filling machines with the help of (figure 2.1.14), given in the participant handbook
- Elucidate the Batch coder with the help of (figure 2.1.15), given in the participant handbook
- Elucidate the Tetra packaging machine with the help of (figure 2.1.16), given in the participant handbook

Activity

Brief

- Each group must demonstrate how to operate Pulp-Processing Equipment.

Activity Description

- Divide the class into 2 groups.
- Ensure regular maintenance of tools and machinery.
- Ensure the controls of all the machines are set to prescribed limits.
- Clean the tools and equipment before and after each operation.
- Ensure the build-up of pressure for machines is always under control.
- Display the techniques to clean the machines post-completion of the production process.

Debrief

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

Unit 2.2 - Sanitisation of the Work Area

Unit Objectives

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

- State the materials and equipment used in cleaning and maintenance of the work area and machineries
- List the various cleaning chemicals required
- List the appropriate cleaning agents and sanitizers to clean the work area, machinery, tools, and equipment after squash production

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- Sterilizer,
- Clarifier
- PPEs,
- Sanitizer,
- Safety Manual.
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Get the class talking by posing questions like, "Why do you think it's important to clean the work area?" "How can we thoroughly clean the workspace?"
- Ask participants for their opinions.
- Based on their comments, describe how the work areas are divided between those with surfaces that come into touch with food and those that don't.
- Hold a group exercise where participants can react to questions concerning various surfaces that come into contact with food and those that don't.
- Describe the cleaning agents and sanitizers used for cleaning.
- Discuss the various cleaning chemicals agents.
- Explain the materials and equipment used in cleaning and maintenance of the work area and machineries

Say 

- In the food processing industry, cleaning and sanitization are key to maintaining hygiene. However, cleaning and sanitization are two different cores of the food processing industry.
- There are various ways of maintaining cleaning and sanitization, which are done through detergents as well as a special cleansing agent.

Ask 

- What is different equipment for cleaning?
- What are effective measures of cleaning?
- What are the cleaning agents and sanitizers used for cleaning?

Notes for Facilitation 

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

Explain 

- Explain the cleaning of workplace and machinery.
- Discuss the sanitisers and agents used in cleaning.

Elaborate 

- Elucidate the Reasons for Cleaning and Sanitizing with the help of (figure 2.2.1), given in the participant handbook
- Describe the Cleaning Work Area Categories with the help of (figure 2.2.2), given in the participant handbook
- Explain the Various Ranges of Detergents with the help of (figure 2.2.3), given in the participant handbook
- Explain the Different types of cleaning agents, related risk factors, and safety measures with the help of (table 2.2.1), given in the participant handbook

Activity **Brief**

- Each group must perform Sanitization Exercise for Squash and Juice Processing

Objective:

- To educate and train participants on proper sanitization procedures for the work area involved in

Squash and Juice Processing.

Materials:

- Cleaning and sanitizing equipment (e.g. sanitizers, cleaning cloths, brushes, mops, etc.)
- Squash and Juice Processing area
- List of sanitization protocols and procedures

Instructions: Begin by introducing the topic of sanitization and its importance in the Squash and Juice Processing industry. Emphasize the potential risks and consequences of poor sanitization practices.

Activity Description

- Divide participants into groups and assign each group a specific area of the Squash and Juice Processing work area to clean and sanitize.
- Provide each group with a list of sanitization protocols and procedures specific to their assigned area. The list should include details on cleaning equipment, surfaces, and any other important guidelines for the area.
- Give the groups enough time to complete the sanitization process, while also ensuring that they follow the protocols and procedures specified.
- After each group has completed the sanitization process, gather everyone together and discuss their experiences. Ask each group to share any challenges they encountered and how they overcame them.
- Emphasize the importance of regular and thorough sanitization practices in the Squash and Juice Processing industry, and encourage participants to make it a part of their daily routine.
- Finally, provide feedback on the group's performance and suggest areas for improvement.

Debrief

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

Unit 2.3 - Cleaning Processes

Unit Objectives

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

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

Resources to be Used

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

Do

- Explain to the class how these sanitisers are used in processing machinery to clean. Briefly describe the cleaning process for industrial machinery.
- Using this example, describe the CIP cleaning and maintenance technique.
- Provide advice on how to carry out an efficient CIP process, such as selecting the best sanitising agent.
- Using examples, describe the COP procedure.
- Describe the SIP approach using illustrations.
- Discuss the Air- Pressure cleaning.
- Describe the process of cleaning machineries, tools and equipment
- Hold a test for the group.
 - List a few of the processing unit's places where food is handled.
 - Inquire of participants what tools or equipment might be present.
 - Find out from the participants the best cleaning technique for that item.

Say

- There are different types of the cleaning process, such as CIP, SOP, SIP and Air Pressure Cleaning, which plays a crucial part in the baking industry
- There are multiple steps needed to maintain the cleansing ritual. Not just the machines, equipment and tools are also required in the cleaning process.

Ask

- What does CIP mean?
- What do you mean by SOP?
- Explain SIP.
- Does Air Pressure Cleaning help in the baking industry?
- What is a cleansing ritual?

Notes for Facilitation

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

Explain

- Explain the Clean In Place (CIP)
- Explain the Clean Out of Place (COP)
- Explain the Sterilizing In Place (SOP)
- Explain the Air Pressure Cleaning
- Explain the Cleaning of Workspace
- Explain the cleaning process of machines and equipment
- Explain the maintenance and Inspection

Elaborate

- Elucidate the Sterilising-In-Place (SIP) with the help of (figure 2.3.1), given in the participant handbook
- Elucidate the Air-pressure cleaning with the help of (figure 2.3.2), given in the participant handbook
- Explain the Process of cleaning the work area with the help of (figure 2.3.3), given in the participant handbook
- Explain the Process of cleaning machineries, tools and equipment with the help of (figure 2.3.4), given in the participant handbook

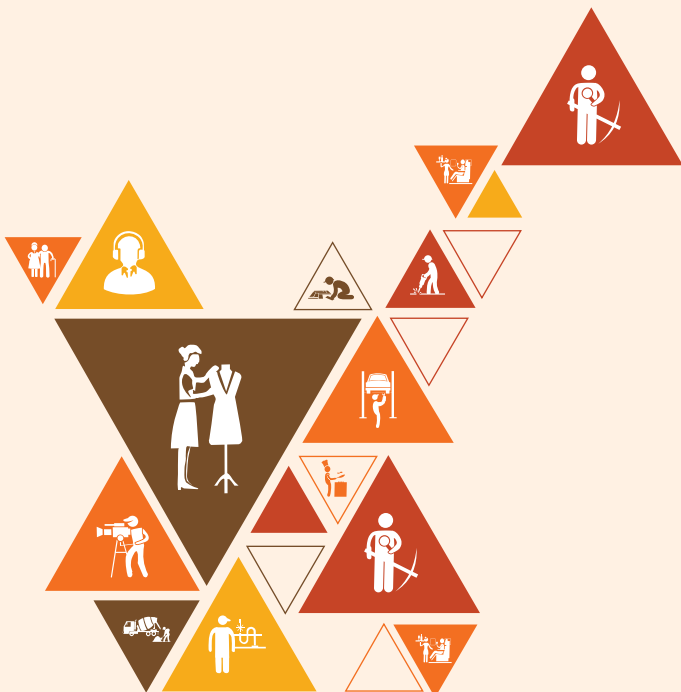


3. Prepare for Production of Squash and Juice

Unit 3.1 Basic Calculations

Unit 3.2 Raw Material: Selection and Handling

Unit 3.3 Production Planning Process and Sequence



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Key Learning Outcomes



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

- Use basic mathematics for various calculations in day-to-day processes
- Identify the raw materials required for production as per production schedule and formation
- Organise quality raw material as per production process and company standards
- State the methods for storing raw material for later use
- Check the raw material for quality and grade
- Prepare the raw material for production
- Plan the production schedule as per organisational standards and instructions
- Organise for raw material, packaging materials, manpower, equipment, and machineries for the scheduled production
- Plan the production sequence to maximise capacity utilisation of resources, manpower, and machineries
- Calculate the batch size based on the production schedule and machine capacity
- Prioritise urgent orders based on the production schedule
- Check the conformance of raw material quality to company standards

Unit 3.1 - Basic Calculations

Unit Objectives

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

- Use basic mathematics for various calculations in day-to-day processes

Resources to be Used

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

Do

- Discuss the raw material and manpower estimation.
- Discuss the raw material inventories are fundamental in squash and juice making processing.

Say

- There are two subdivisions of raw materials:
 - Direct Materials
 - Indirect Materials

Ask

- What is direct materials?
- What is Indirect materials?

Notes for Facilitation

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

Explain

- Explain the raw material and manpower estimation
- Explain about the direct and indirect materials with help of examples.

Elaborate



- Elucidate Steps to Calculate Manpower Estimation for Production with the help of (figure 3.1.1), given in the participant handbook

Activity



Brief

- Each group must participate in calculation Exercise for Squash and Juice Production.

Activity Description

Objective: To educate and train participants on the basic calculations involved in the preparation of Squash and Juice for production.

Materials:

- Writing materials (e.g. pens, pencils, paper, calculators, etc.)
- Recipe for Squash and Juice production
- List of basic calculations for Squash and Juice production (e.g. yield calculations, conversion calculations, costing calculations, etc.)
- Instructions:
- Begin by introducing the topic of basic calculations and their importance in the Squash and Juice production process. Emphasize the potential risks and consequences of incorrect calculations.
- Divide participants into groups and assign each group a specific calculation to perform. For example, one group can work on yield calculations, another on conversion calculations, and another on costing calculations.
- Provide each group with the necessary materials (e.g. recipe, calculator, etc.) to perform their calculation. Make sure to provide clear instructions and guidelines for each calculation.
- Give the groups enough time to complete their calculations. Circulate among the groups to provide assistance and answer any questions.
- After each group has completed their calculation, gather everyone together and discuss their experiences. Ask each group to share any challenges they encountered and how they overcame them.
- Emphasize the importance of accuracy in calculations in the Squash and Juice production process, and encourage participants to double-check their work before moving forward.
- Finally, provide feedback on the group's performance and suggest areas for improvement.

Debrief

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

Unit 3.2 - Raw Material: Selection and Handling

Unit Objectives



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

- Identify the raw materials required for production as per production schedule and formation
- Organise quality raw material as per production process and company standards
- State the methods for storing raw material for later use
- Check the raw material for quality and grade
- Prepare the raw material for production

Resources to be Used



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

Do



- Explain the procurement and storage of raw material in fruit processing industry.
- Discuss the handling of raw materials.

Say



- The fruit selection depends on following factors:
 - Tree or crop type
 - Growing practices
 - Region where the crop has grown as per weather
 - Degrees of maturity and ripeness
 - Location of the crop
 - Method of pulping/harvesting
- There are ways through which to help in the fruit and vegetables process. It can be differentiated between continuous production and batch production.

Ask



- What is procurement and storage in the fruit vegetables processing.
- How to Handle Raw Materials?

Notes for Facilitation



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

Explain



- Explain the raw material procurement and storage.
- Show the chart of crop season, raw materials, and their time of availability.

Elaborate



- Elucidate the raw material and their availability times with the help of (table 3.2.1), given in the participant handbook
- Elucidate the Handling of raw materials with the help of (figure 3.2.1), given in the participant handbook

Activity



Brief

- Each group must participate in Activity: Raw Material Selection and Handling for Squash and Juice Processing

Materials:

- Various types of squash (e.g., butternut, acorn, spaghetti)
- Juicer or blender
- Cutting board and knife
- Measuring cups
- Containers for collecting juice
- pH meter or pH test strips
- Thermometer
- Sanitizing solution
- Gloves

Instructions:

1. Briefly explain the importance of raw material selection and handling in the production of high-quality squash and juice products.
2. Discuss the characteristics of different types of squash and how they may affect the final product.
3. Review the basic steps involved in raw material selection and handling (e.g., harvesting, cleaning, storing).

Raw Material Selection (30 minutes)

1. Divide participants into small groups (3-4 people per group).
2. Provide each group with a selection of different types of squash.
3. Instruct groups to examine each squash and evaluate its suitability for juice production based on factors such as ripeness, texture, and flavor.
4. Each group should select one squash to use for juicing.

Raw Material Handling (60 minutes)

1. Provide each group with a cutting board, knife, and juicer or blender.
2. Instruct groups to prepare their selected squash for juicing, paying careful attention to sanitation and safety practices.
3. Each group should measure the pH and temperature of their juice.
4. Discuss the results as a group, noting any differences in pH or temperature between the different types of squash.

Conclusion (10 minutes)

1. Summarize the importance of raw material selection and handling in squash and juice processing.
2. Encourage participants to apply what they have learned to their own production processes.

Notes:

- To ensure safety, participants should wear gloves and use a sanitizing solution to clean their equipment and work surfaces.
- Consider providing additional materials (e.g., sugar, spices) to allow participants to experiment with flavor profiles..

Debrief

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

Unit 3.3 - Production Planning Process and Sequence

Unit Objectives

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

- Plan the production schedule as per organisational standards and instructions
- Organise for raw material, packaging materials, manpower, equipment, and machineries for the scheduled production
- Plan the production sequence to maximise capacity utilisation of resources, manpower, and machineries
- Calculate the batch size based on the production schedule and machine capacity
- Prioritise urgent orders based on the production schedule
- Check the conformance of raw material quality to company standards

Resources to be Used

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

Do

- Discuss the various considerations, such as production needs, product to be prepared, etc., for selecting the desired raw material.
- Discuss the planning for the production sequence events.

Say

- The production process starts from the production schedule and ends with a complete Execute process.

Ask

- What is production plan process?

Notes for Facilitation

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

Explain



- Explain the Production plan process.

Elaborate



- Elucidate the Production plan with the help of (figure 3.3.1), given in the participant handbook
- Elucidate the planning the production sequence with the help of (figure 3.3.2), given in the participant handbook

Activity



Brief

- Each group must demonstrate "From Squash to Juice: Optimizing the Processing Sequence"

Objective:

- The objective of this group activity is to optimize the processing sequence for squash and juice production in a small-scale processing facility. By working together, participants will identify the key steps involved in squash and juice processing and develop an optimized sequence of these steps.

Materials:

- Whiteboard and markers
- Timer
- Squash and juice processing equipment (optional)

Instructions:

- Divide the participants into small groups of 4-5 people.
- Introduce the activity and explain the objective to the participants.
- Provide an overview of the squash and juice processing steps and equipment.
- Give the groups 10 minutes to brainstorm and list all the steps involved in squash and juice processing. Encourage the groups to consider all aspects of the process, including pre-processing, washing, cutting, grinding, pressing, pasteurizing, bottling, and packaging.
- Once the brainstorming session is complete, have each group share their list of steps with the entire group. Write all the steps on the whiteboard.
- Using the list of steps, ask the groups to work together to develop an optimized sequence for squash and juice processing. Remind the participants to consider factors such as efficiency, quality control, and safety.
- Set a timer for 20-30 minutes and give the groups time to discuss and refine their processing sequence.
- Once the time is up, ask each group to present their optimized processing sequence to the entire



4. Produce Squash and Juice

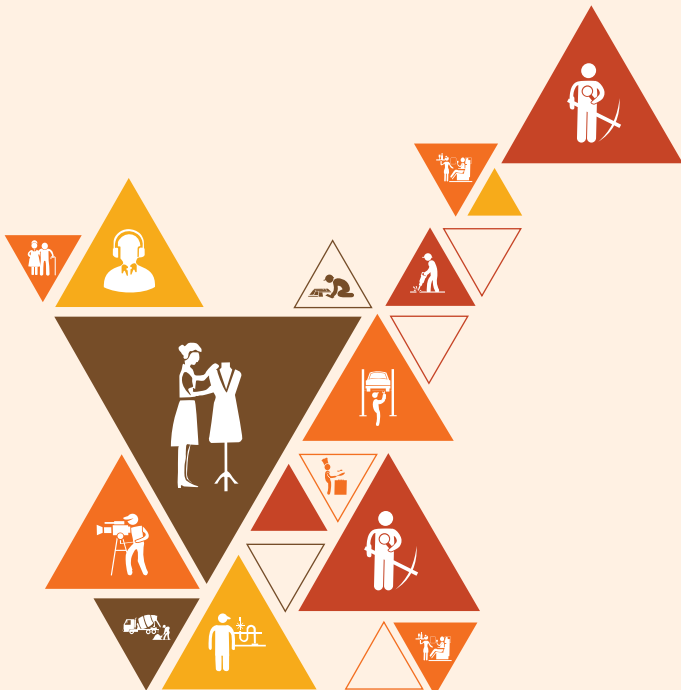
Unit 4.1 Perform Fruit Juice Extraction Process

Unit 4.2 Pasteurize and Clarify the Extracted Juice

Unit 4.3 Production Process of Squash

Unit 4.4 Filling, Packing and Storage of Juice and Squash

Unit 4.5 Post Production Cleaning and Maintenance



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
- Perform the tasks to pasteurize and clarify the extracted juice
- Discuss the process of pasteurization and clarification of extracted juice
- Perform the tasks to produce the squash
- Describe the methods required to prepare squash
- Perform the tasks to fill, pack and store the juice and squash
- Describe the reporting procedure regarding the discrepancy
- State the basic categories of packing
- State the various types of packaging materials used for packing fruit pulp
- State the factors for selecting packaging materials
- State the storage procedures for finished goods
- Explain the rules for stock rotation of finished goods
- Explain aseptic packaging in fruit processing industry
- Demonstrate the process of cleaning and maintenance of work area after production
- State the kind of waste produced and its disposal

Unit 4.1 - 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



- Participant handbook
- Computer
- Projection Equipment
- Thermometer (Digital)
- Beakers
- Measuring Cylinder
- Measuring Flask
- Weighing Balance (Digital)
- Brix Meter/Refractometer
- Fruit Tray
- Cutting Knives
- Mixer/Electric Mixer
- Fruit Slicing Machine
- Pulper
- Peeler
- Steam Jacketed Kettle
- Slicer
- Pasteurizer
- Sterilizer
- PPEs
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Describe the significance of enzyme activity.
- Recall the discussion about the fruit juice extraction process.
- Explain the method of fruit juice extraction.
- Discuss the standard procedure for lab analysis.
- Talk about the various types of machines used for juice from fruits.

Say

- There are different types of fruit beverages or drinks as follows:
 - Juices
 - Thermally Processed Fruit Nectar (TPFC)
 - Fruit syrup/Squashes
 - Cordials
- There are different types of machines used for juices from fruits:
 - Pulper
 - Citrus juicer
 - Manual hydraulic press juicer

Ask

- What are the methods of fruit juice extraction?
- What are the fruit-juice extraction processes?
- What are the standard procedures for lab analysis?
- What is rough filtration?

Notes for Facilitation

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

Explain

- Explain the significance of enzyme activity.
- Describe the fruit juice extraction process.
- Show the method of fruit juice extraction.
- Explain the standard procedure for lab analysis.

Elaborate

- Elucidate the Benefits of enzyme activity of fruit juices with the help of (figure 4.1.1), given in the participant handbook
- Explain the Classification of fruit beverages with the help of (figure 4.1.2), given in the participant handbook
- Elucidate the Fruit-juice extraction process with the help of (figure 4.1.3), given in the participant handbook
- Elucidate the Workflow process of fruit-juice extractor machine with the help of (figure 4.1.4), given in the participant handbook
- Elucidate the Pulper with the help of (figure 4.1.5), given in the participant handbook
- Elucidate the Citrus juicer with the help of (figure 4.1.6), given in the participant handbook
- Elucidate the Manual hydraulic press juicer with the help of (figure 4.1.7), given in the participant handbook
- Elucidate the Juice extractor/hydraulic press/continuous press/filter press with the help of (figure 4.1.8), given in the participant handbook
- Elucidate the Quality parameters of fruit juices with the help of (figure 4.1.9), given in the participant handbook

Activity

Brief

- Each group must participate in Juice Making Competition.

Activity Description

- Divide the participants into teams, with each team having a specific fruit to work with. For example, one team could be given oranges, while another team could be given pineapples.
- Provide each team with the necessary equipment for juice extraction, such as a juicer or blender.
- Set a time limit for the competition. This will depend on the number of teams and the complexity of the fruit being used. For example, teams working with oranges may have less time than teams working with pineapples.
- Explain the rules of the competition. Each team must extract as much juice as possible from their assigned fruit within the given time frame. The team with the most juice extracted at the end of the competition wins.
- Encourage creativity. Allow teams to experiment with different juice extraction techniques and flavor combinations. They can add other ingredients to the juice, such as honey or mint, to enhance its taste.
- Judge the competition. Have a panel of judges taste the different juices and score them based on taste, texture, and overall presentation.
- Award prizes. Provide prizes to the winning team, such as gift cards or certificates.

Debrief

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

Unit 4.2 - 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

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

Do

- Explain the pasteurization process of the extracted juice.
- List the types of Pasteurization Process in food processing industry.
- Describe the workflow operation of pasteurization machine.
- Discuss the clarification process of fruit juice.
- Recall the quality assessment and sample analysis.

Say

- The main parameters that influence the pasteurization process of a fruit juice are as follows:
 - Temperature
 - Time
 - Acidity or pH level of the fruit
 - Pressure
 - Flow rate
- There are different types of pasteurization process
 - LTLT (low temperature long time) pasteurization process:
 - In this process, juices are heated at 62.5°C for 20 - 30 minutes and cool down suddenly to 4-5°C
 - HTST (high temperature short time) pasteurization
 - In this process, juices are heated up at high temperature of 72.0°C for short time (15 sec-30 sec)

Ask

- What are the pasteurization process in the fruit juice?
- What are the types of pasteurization process?
- What is the workflow operation of pasteurization machine?
- What are the clarification process of fruit juice?
- What is the quality assessment and sample analysis?

Notes for Facilitation

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

Explain

- Explain the pasteurization process.
- Discuss the types of pasteurization process.
- Explain the workflow operation of plate pasteurizer machine.
- Explain the methods used in the clarification process of the fruit juices.
- Describe the quality assessment and sample analysis.

Elaborate

- Elucidate the parameters of pasteurization process with the help of (figure 4.2.1), given in the participant handbook
- Explain the pasteuriser with the help of (figure 4.2.2), given in the participant handbook
- Elucidate the types of pasteurization process with the help of (figure 4.2.3), given in the participant handbook
- Elucidate the various methods of pasteurization with the help of (figure 4.2.4), given in the participant handbook
- Elucidate the features of plate pasteurizer with the help of (figure 4.2.5), given in the participant handbook
- Elucidate the workflow operation of plate pasteurizer machine with the help of (figure 4.2.6), given in the participant handbook
- Elucidate the various methods of clarification process of fruit juice with the help of (figure 4.2.7), given in the participant handbook
- Elucidate the clarifier/ultra-filtration unit with the help of (figure 4.2.8), given in the participant handbook
- Elucidate the pH Scale with the help of (figure 4.2.9), given in the participant handbook
- Elucidate the viscometer with the help of (figure 4.2.10), given in the participant handbook
- Elucidate the microbiological standards for fruits and their products with the help of (table 4.2.1), given in the participant handbook

Activity

Brief

- Each group must demonstrate pasteurization process of fruit juices in food processing industry.

Activity Description

- Divide the class into 2 groups.
- Show the parameters of pasteurization process.
- Explain the types of pasteurization process.
- Explain the different methods of pasteurization used in food processing industries.
- Recall the list them features of plate pasteurizer.
- Show the workflow operation of plate pasteurizer machine.
- Explain the various methods of clarification process of fruit juice.
- Show the ph Scale.

Debrief

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

Unit 4.3 - Produce and Prepare 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



- Participant handbook
- Computer
- Projection Equipment
- Thermometer (Digital)
- Beakers
- Measuring Cylinder
- Measuring Flask,
- Weighing Balance (Digital)
- Brix Meter/Refractometer
- Fruit Tray, Cutting Knives
- Mixer/Electric Mixer
- Fruit Slicing Machine
- Pulper
- Peeler
- Steam Jacketed Kettle
- Slicer,
- Pasteurizer
- Sterilizer
- PPE's
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Recall the fruit squash.
- Discuss the equipment used in squash making.
- Explain the workflow process of squash making.
- Explain the different types of equipment and tools used in squash and juice in the food processing industry.

Say

- There are different types of equipment and tools used in squash and juice:
 - Cooking Kettle
 - Peeler
 - Pulper machine
 - Filter cloth/sieve
 - Mixer/Agitator
 - Sterilizer/Pasteurizer
 - Refractometer
 - crown corking/capping machine

Ask

- What are the fruit squash?
- What is equipment used in Squash Making?
- What is list of ingredients used for the preparation of squash?

Notes for Facilitation

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

Explain

- Explain the fruit squash.
- Explain the process of squash making.

Elaborate

- Elucidate the list of ingredients used for the preparation of squash with the help of (table 4.3.1), given in the participant handbook

- Explain the list of equipment and tools for squash making with the help of (table 4.3.2), given in the participant handbook
- Describe the workflow process of squash making with the help of (figure 4.3.1), given in the participant handbook.

Activity

Brief

- Each group must demonstrate the tasks required for the preparation of squash of a fruit and juice making/operative in the food processing industry.

Activity Description

- Divide the class into 2 groups.
- Discuss the fruit squash.
- Select ingredients used for the preparation of squash.
- Different types of equipment and tools used for making a squash.
- Show the workflow process of squash making.

Debrief

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

Unit 4.4 - 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

- Participant handbook
- Computer
- Projection Equipment
- Thermometer (Digital)
- Beakers
- Measuring Cylinder
- Measuring Flask,
- Weighing Balance (Digital)
- Brix Meter/Refractometer
- Fruit Tray, Cutting Knives
- Mixer/Electric Mixer
- Fruit Slicing Machine
- Pulper
- Peeler
- Steam Jacketed Kettle
- Slicer,
- Pasteurizer
- Sterilizer
- PPE's
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Discuss about introduction to packaging in food processing industry.
- Recall the packaging machinery in food processin industry.
- Describe the filling and bottling operation of squash.
- Explain the standard procedure to load labels in labeling machine.
- Show how to organize the packaging materials, workforce, equipment and machinery for production.
- Explain the benefits of packaging of squash and juices.

Say 

- Different types of functions of packaging:
 - Containment - To contain its contents so that they can be easily transported and stored
 - Protection - To protect its contents from any external influence
 - Convenience - To handle and store
 - Communicate - To convey the information

Ask 

- What are the different types of packaging used in food industry?
- What packaging machinery are used in squash and juice processing?
- How to filling and bottling operation of squash?
- What is the procedure of labeling machine in fruit juice and squash bottles?

Notes for Facilitation 

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

Explain 

- Explain the packaging.
- Explain the packaging machinery.
- Discuss the various functions of filling machine.
- Explain the standard procedure of labeling machine.

Elaborate 

- Elucidate the functions of packaging with the help of (figure 4.4.1), given in the participant handbook
- Elucidate the benefits of packaging of squash & juices with the help of (figure 4.4.2), given in the participant handbook
- Elucidate the various functions of filling machine with the help of (table 4.3.4), given in the participant handbook
- Elucidate the workflow process of filling station with the help of (figure 4.4.3), given in the participant handbook
- Elucidate the bottle filling machines used for filling of juices squashes into bottles with the help of (figure 4.4.4), given in the participant handbook
- Elucidate the packaging of fruit juice/squash with the help of (figure 4.4.5), given in the participant handbook
- Elucidate the workflow process of labeling fruit juice/squash bottles with the help of (figure 4.4.6), given in the participant handbook
- Elucidate the labelling machine with the help of (figure 4.4.7), given in the participant handbook

Activity

Brief

- Each group must perform a simulation exercise that simulates the real-world process of filling, packing, and storing juice or squash .

Activity Description

- Divide the participants into groups of 4-5 people each.
- Assign each group a specific role in the process, such as filling, packing, or storing.
- Provide each group with a set of instructions that outlines their specific responsibilities, as well as any safety precautions they need to take.
- Set up a mock production line, with each group stationed at a different point in the process.
- Provide each group with the necessary equipment and supplies, such as bottles, caps, labels, and juice or squash concentrate.
- Start the production line and have each group carry out their tasks according to the instructions provided.
- As the simulation proceeds, monitor each group's performance, and provide feedback on their efficiency, accuracy, and safety practices.
- Once the simulation is complete, debrief the participants, and ask them to reflect on their experience, what they learned, and how they could improve the process in the future..

Debrief

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

Unit 4.5 - Post Production Cleaning and Maintenance

Unit Objectives

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

- Demonstrate the process of cleaning and maintenance of work area after production
- State the kind of waste produced and its disposal

Resources to be Used

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

Do

- Discuss the post production cleaning of work area and machinery.
- Explain the maintenance and check in food manufacturing.
- Recall the waste management.
- Talk about the main approaches to waste management and the hierarchy of waste management.
- Exhibit the post-production, cleaning, and maintenance procedures.
- Assign the practicals of maintenance and cleaning after production.
- Explain the different kinds of waste generated by different fruits

Say

- List the various methods of cleaning the work area and machinery:
 - Manual Cleaning
 - Foam Cleaning
 - Spray
 - Fogging
 - Machine Washing
- There are different steps for cleaning work area
 - Pre-clean
 - Wash
 - Rinse
 - Sanitize
 - Final Rinse

- Dry
- List the various maintenance schedule guidelines:
 - Care and cleaning
 - Safety checks
 - Functional and performance checks
 - Maintenance tasks(changing parts, lubricating moving parts, etc.)

Ask



- What is manual cleaning?
- What is machine washing?
- What are the foam cleaning?
- What is waste management?

Notes for Facilitation



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

Explain



- Explain the different types of cleaning of work area and machinery.
- Explain the steps for cleaning work area.
- Show the cleaning and maintenance process for squash and juice machinery and equipment.
- Explain the different types of maintenance in a food processing unit.
- Explain the waste management.

Elaborate



- Elucidate the various methods of cleaning the work area and machinery with the help of (figure 4.5.1), given in the participant handbook
- Explain the Steps for cleaning work area with the help of (figure 4.5.2), given in the participant handbook
- Elucidate the cleaning and maintenance process for squash and juice machinery and equipment with the help of (figure 4.5.3), given in the participant handbook
- Explain the Importance of reporting faulty tools and equipment with the help of (figure 4.5.4), given in the participant handbook
- Explain the maintenance schedule guidelines the process with the help of (figure 4.5.5), given in the participant handbook
- Elucidate the maintenance checklist with the help of (figure 4.5.6), given in the participant handbook
- Elucidate the kinds of waste generated by different fruits with the help of (table 4.5.1), given in the participant handbook

Activity

Brief

- Each group must perform a simulation exercise that simulates the real-world process of filling, packing, and storing juice or squash .

Activity Description

- Show the various method of cleaning the work area and machinery.
- Discuss the steps for cleaning work area.
- Show the cleaning and maintenance process for squash and juice machinery and equipment.
- Discuss the maintenance schedule guidelines.
- Describe the waste management.
- Cleaning and maintaining squash and juice equipment is to disassemble the machinery, removing all parts that come into contact with the product.
- Once disassembled, the equipment is cleaned thoroughly using specialized cleaning agents and equipment. This may include scrubbing, rinsing, and sanitizing to remove any buildup of pulp, juice, or other residues.
- After cleaning, each part is inspected for wear and tear or damage that may need repairing or replacement. This ensures that the equipment functions properly and produces high-quality squash or juice.

Debrief

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

Key Learning Outcomes



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

- State the personal hygiene and sanitation guidelines
- State the food safety and hygiene standards to follow in a work environment
- List the different sanitisers used in the process area and equipment
- Follow health and safety practices in the work area
- State the importance of safety, hygiene, and sanitation in the food processing industry
- Follow the industry standards to maintain a safe and hygiene workplace
- State the storage and stock rotation norms
- Follow HACCP principles to eliminate food safety hazards in the process and products

Unit 5.1 - Sanitation and Hygiene

Unit Objectives

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

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

Resources to be Used

- Participant handbook
- Computer
- Projection Equipment
- Protective gloves
- Head caps
- Aprons
- Safety goggles
- Safety boots
- Mouth covers
- Sanitizer
- Safety manual
- Logbooks
- PowerPoint Presentation and software
- Facilitator's Guide

Do

- Recall the personal sanitation and sanitation guideline.
- Talk about the Do and Don't of the personal cleanliness.
- Ensure about the food safety or hygiene in squash and juice processing in food processing industry.
- Explain that every food handler should carry proper clean protection, face mask, gloves, footwear, and head covering.

Say

- Personal Hygiene includes:
 - Health Condition: Personnel suffering from any disease should not be permitted to enter any food handling region.
 - Personal Cleanliness: Refers to one's hygiene.

Ask

- What do you mean by Personal Hygiene?

Notes for Facilitation

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

Explain

- Explain the Personal Hygiene.

Elaborate

- Elucidate the personal sanitation with the help of (figure 5.1.1), given in the participant handbook
- Elucidate the washing hands with soap and water with the help of (figure 5.1.2), given in the participant handbook
- Elucidate the do not smoke, spit, cough with the help of (figure 5.1.3), given in the participant handbook
- Explain the timely medical treatment with the help of (figure 5.1.4), given in the participant handbook

Activity

Brief

- Each group must perform a simulation exercise that simulates the real-world process of filling, packing, and storing juice or squash.

Activity Description

- Divide the class into groups of 4-5 participants.
- Assign a sub-sector to each group.
- Initiate a discussion within the class asking about the hygiene practices that must be followed daily. For example, washing hands, dusting shoes/footwear, wearing aprons etc.
- Get inputs from the class. Jot down important points on the board/flipchart. Add some more hygiene practices of your own.
- Ask one group to explain the importance of personal cleanliness.

Debrief

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

Unit 5.2 - Safety Practices

Unit Objectives

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

- Follow health and safety practices in the work area

Resources to be Used

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

Do

- Explain the different types of symbols in case of an emergency or fire.
- Discuss the emergency measures.

Say

- Different hazard signs displayed in case of an emergency or fire in the workplace industry. Every workforce should follow the guidelines at any given time, along with the procedure of following policies in the food processing unit.

Ask

- List the different types of safety symbols in emergency or fire.
- How to use fire extinguisher?
- How to use the fire buckets?

Notes for Facilitation

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

Explain

- Explain the fire safety measures.

Elaborate

- Elucidate the safety symbols with the help of (figure 5.2.1), given in the participant handbook
- Elucidate the types of fire and fire extinguishers with the help of (figure 5.2.2), given in the participant handbook
- Elucidate the fire extinguisher with the help of (figure 5.2.3), given in the participant handbook
- Elucidate the fire Buckets with the help of (figure 5.2.4), given in the participant handbook

Activity

Brief

- Each group must create a list of health and safety practices in the food processing industry.

Activity Description

- Form groups of four students.
- All employees involved in the production of squash and juice should be properly trained in health and safety practices. This may include instruction in the use of personal protective equipment (PPE), safe work procedures, and emergency response protocols.
- Personal protective equipment is essential for preventing workplace accidents and injuries. Workers should be provided with appropriate PPE, such as gloves, eye protection, and respiratory protection if necessary.
- Sprinklers or fire extinguishers, for example, should be installed and maintained properly in all areas of the manufacturing facility. Employees should also be trained on how to use these systems in the event of a fire.
- In the event of an emergency, all workers should be trained in emergency response protocols of a fire. This includes establishing clear evacuation procedures, conducting fire drills, and having proper first aid equipment on site.

Debrief

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

Unit 5.3 - Good Manufacturing Practices (GMP)

Unit Objectives

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

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

Resources to be Used

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

Do

- Explain the good manufacturing practices (GMP).
- Show about the personnel hygiene.
- Ensure about the cleaning and sanitation of the work area.
- Ensure about the all equipment maintenance are proper in food processing industry.

Say

- Good Manufacturing Practice focuses on four sectors:
 - Personal hygiene
 - Process Validation
 - Maintenance of equipment
 - Sanitation of the work area
- Various sectors are focused through GMP. Those sectors are:
 - Personal hygiene:-
 - Personal hygiene
 - Sanitation hygiene
 - Work area cleanliness:-
 - Designated storage area
 - Work area cleanliness
 - Equipment maintenance
 - Equipment maintenance
 - Monthly Schedule

- Process Validation
 - Process Verification
 - Quality Inspection

Ask

- What are the good manufacturing practices(GMP)?

Notes for Facilitation

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

Explain

- Explain the Good Manufacturing Practices(GMP).

Elaborate

- Elucidate the good manufacturing practices (GMP) with the help of (figure 5.3.1), given in the participant handbook
- Elucidate the personnel hygiene with the help of (figure 5.3.2), given in the participant handbook
- Elucidate the facilities for toilets with the help of (figure 5.3.3), given in the participant handbook
- Elucidate the designated area for keeping utensils with the help of (figure 5.3.4), given in the participant handbook
- Explain the sanitation of the work areawith the help of (figure 5.3.5), given in the participant handbook
- Elucidate the equipment maintenance with the help of (figure 5.3.6), given in the participant handbook
- Elucidate the monthly schedule with the help of (figure 5.3.7), given in the participant handbook
- Elucidate the process validation with the help of (figure 5.3.8), given in the participant handbook
- Elucidate the quality checks with the help of (figure 5.3.9), given in the participant handbook

Activity

Brief

- Conduct a case study analysis of a real-life situation where GMP principles were violated and caused a safety or quality issue.

Activity Description

- The class can be divided into groups
- Each group can be given a scenario where they must identify the GMP violations, and suggest ways to correct them.

Debrief

- This activity encourages students to think critically and apply their knowledge of GMP principles to solve problems.

Unit 5.4 - Hazard Analysis and Critical Control Point (HACCP)

Unit Objectives

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

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

Resources to be Used

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

Do

- Recall the HACCP.

Say

- Hazard Analysis and Critical Control Point (HACCP) is an international food safety regulation that is followed to reduce the risk of hazards in a food processing unit.

Ask

- What is the HACCP?

Notes for Facilitation

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

Explain

- Explain the HACCP.

Elaborate

- Elucidate the What is HACCP with the help of (figure 5.4.1), given in the participant handbook

Activity

Brief

- A role-playing exercise where students act out various scenarios involving potential safety hazards. This could involve creating hypothetical situations related to fire safety, electrical safety, or workplace safety, for example

Activity Description

- Group the students into a group of four or five.
- The students could then take turns assuming different roles and practicing how to respond appropriately in the event of an emergency or potential danger
- Role-play a situation depicting the safety practices to be followed at the workplace.

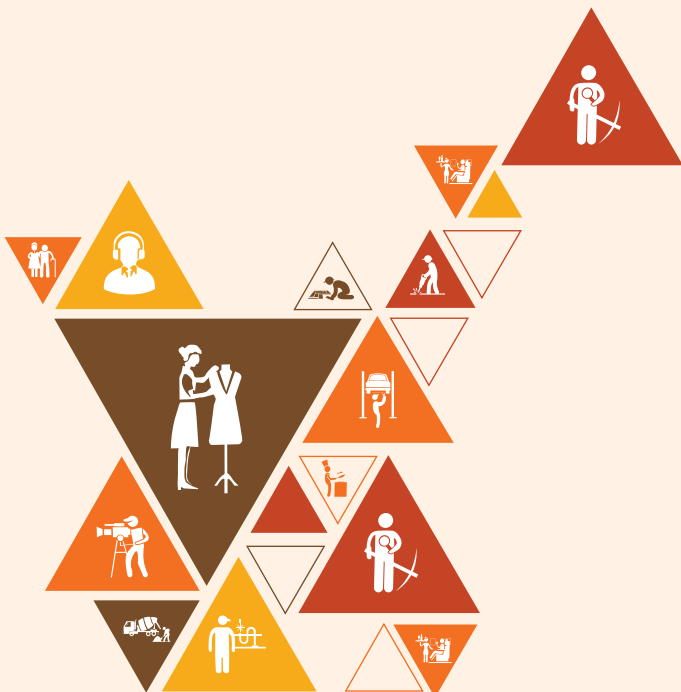
Debrief

- This type of activity can be an effective way to help students better understand and internalize important safety practices, as well as to build teamwork and communication skills.



6.Complete Documentation and Record Keeping Related to Production of Squash and Juice

Unit 6.1 Documentation and Record Keeping



FIC/N0104

Key Learning Outcomes

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

- State the need for documenting and maintaining records of raw materials, process, and finished products
- State the method of documenting and recording the details of raw material to final finished product

Unit 6.1 - Documentation and Record Keeping

Unit Objectives

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

- State the need for documenting and maintaining records of raw materials, process, and finished products
- State the method of documenting and recording the details of raw material to final finished production

Resources to be Used

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

Do

- Begin the class by recalling the activity on noting batch numbers during every practice session.
- Ask the class what could have been the reason why such an activity was conducted.
- Discuss the importance of documentation and maintaining records during the entire work process.
- List the information to be recorded as per the production work.

Say

- Proper Documentation can help in the following:
 - To run business
 - Product Quality Control
 - To track money control
 - Identification of Raw material
 - Identification of Production Sequence
- As we need proper documents, there is a formal requirement to maintain the records:
 - Requirement of raw material
 - Used ingredients
 - The product quality

Ask

- How can we maintain documents?

Notes for Facilitation

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

Explain

- Explain why Documentation is Required.
- Explain how records are kept .

Activity

Brief

- To understand the importance of documentation and record keeping in the food industry and to develop a system for maintaining accurate records.

Activity Description

- Form a group of four members.
- Provide the group with a list of important documents and records in the food industry (e.g., HACCP plan, standard operating procedures, inspection reports, etc.).
- Assign each group member to research one type of document or record and prepare a short presentation on its purpose, importance, and best practices for maintaining accurate records.
- Have the group brainstorm ways to develop a system for maintaining accurate records, taking into account the types of documents and records identified.
- Provide the group with examples of record-keeping systems and have them evaluate the pros and cons of each system.
- Have the group work together to develop a system for maintaining accurate records that takes into account the types of documents and records identified, as well as the best practices for record keeping.
- Once the system has been developed, have the group discuss the benefits of maintaining accurate records, such as improving quality control, facilitating inspections and audits, and minimizing risk.

Debrief

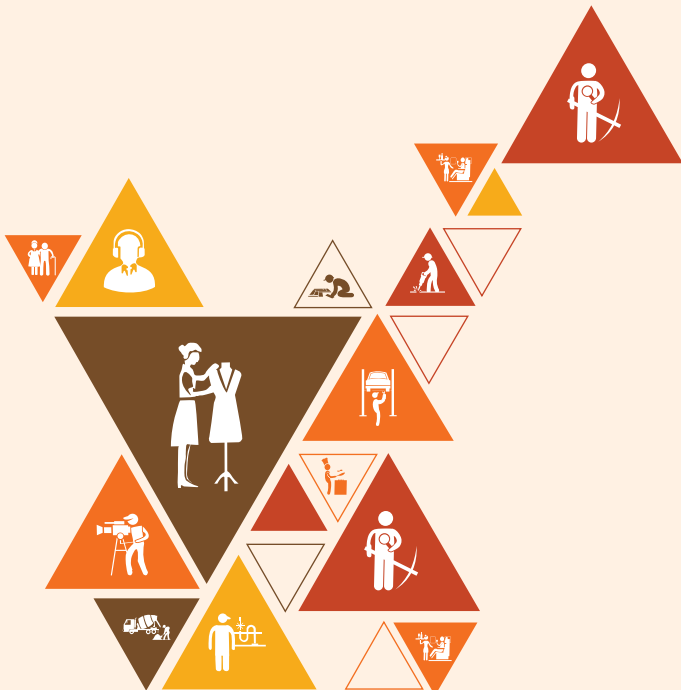
- This activity is designed to be informative, collaborative, and practical, and it encourages participants to understand the importance of documentation and record keeping in the food industry, and to develop a system for maintaining accurate records that meets the needs of their organization.?



7. Employability Skills



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



DGT/VSQ/N0101

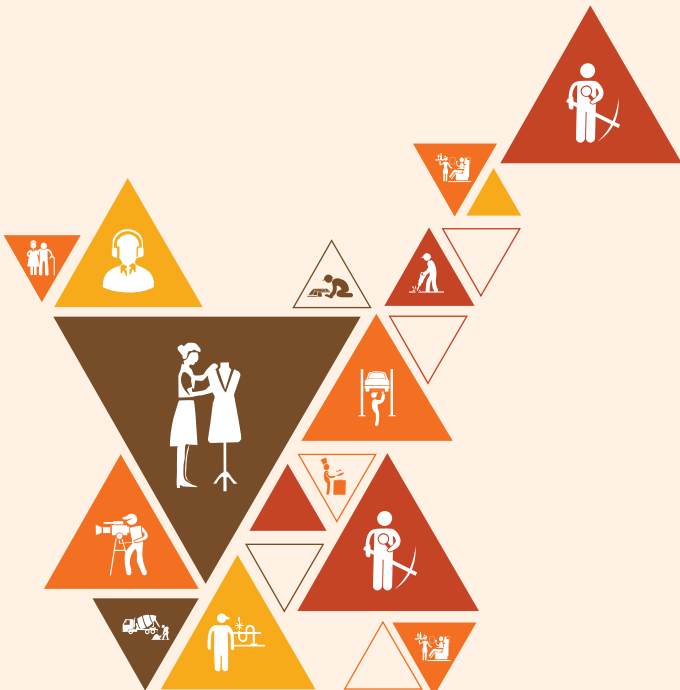


8. Annexures

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	Introduction to the Training Programme	Explain the purpose of training	FIC/N0101	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.1 P : 0
		Introduction to the Training Programme (Contd...)	Discuss the National Occupational Standards and Qualification Pack		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.1 P : 0
		Introduction to the Food Processing Industry	Define food processing		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.1 P : 0
		Introduction to the Food Processing Industry (Contd...)	List the various sectors of the food processing industry		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.1 P : 0
		Introduction to the Food Processing Industry (Contd...)	Describe the various stages of food processing for converting raw materials to food products		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.1 P : 0
		Introduction to Fruit and Vegetable Processing	State the different sub-sectors of the fruits and vegetable industry		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.1 P : 0
		Introduction to Fruit and Vegetable Processing (Contd...)	State the common methods of fruit and vegetable processing		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 0
		Introduction to Squash and Juice	List the various sub-sectors of beverage industry		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 0
		Introduction to Squash and Juice (Contd...)	List the various fruit drinks		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 0
		Introduction to Squash and Juice (Contd...)	Define fruit juice and its types		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 0
		Introduction to Squash and Juice (Contd...)	Define squash		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 0
		Introduction to Squash and Juice (Contd...)	List the various fruits used for making squash and juice		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 0
		Attributes of a Squash and Juice Processing Technician	State the roles and responsibilities of a squash and juice processing technician		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 0.2 P : 0

S No.	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools Aids	Duration
2	Prepare and Maintain Work Area and Process Machineries for Squash and Juice Processing	Equipment Used for Fruit Pulping	Identify the different equipment, tools, and machineries used for food processing	FIC/N0101	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Sanitisation of the Work Area	State the materials and equipment used in cleaning and maintenance of the work area and machineries		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Sanitisation of the Work Area (Contd...)	List the various cleaning chemicals required		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Sanitisation of the Work Area (Contd...)	List the appropriate cleaning agents and sanitizers to clean the work area, machinery, tools, and equipment after squash production		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 4
		Cleaning Processes	State the cleaning processes used to clean the work area and process machineries		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 4
3	Prepare for Production of Squash and Juice	Basic Calculations	Use basic mathematics for various calculations in day-to-day processes	FIC/N0102	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Raw Material: Selection and Handling	Identify the raw materials required for production as per production schedule and formation		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Raw Material: Selection and Handling (Contd...)	Organise quality raw material as per production process and company standards		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Raw Material: Selection and Handling (Contd...)	State the methods for storing raw material for later use		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Raw Material: Selection and Handling (Contd...)	Check the raw material for quality and grade		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Raw Material: Selection and Handling (Contd...)	Prepare the raw material for production		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Production Planning Process and Sequence	Plan the production schedule as per organisational standards and instructions		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4

S No.	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools Aids	Duration
		Production Planning Process and Sequence (Contd...)	Organise for raw material, packaging materials, manpower, equipment, and machineries for the scheduled production		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Production Planning Process and Sequence (Contd...)	Plan the production sequence to maximise capacity utilisation of resources, manpower, and machineries		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Production Planning Process and Sequence (Contd...)	Calculate the batch size based on the production schedule and machine capacity		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Production Planning Process and Sequence (Contd...)	Prioritise urgent orders based on the production schedule		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Production Planning Process and Sequence (Contd...)	Check the conformance of raw material quality to company standards		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		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		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 3
		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 : 2 P : 3
		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 : 2 P : 3
		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 : 2 P : 3
		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 : 2 P : 3
		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 : 2 P : 3

S No.	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools Aids	Duration
4	Produce Squash and 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 : 2 P : 3
		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 : 2 P : 3
		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 : 2 P : 3
		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 : 2 P : 3
		Produce and Prepare Squash	Discuss the usage of refractometer in the squash preparing process		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 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 : 2 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 : 2 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 : 2 P : 2
		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 : 2 P : 2
		Filling, Packing and Storage of Juice and Squash	Discuss the procedure to transfer the finished product into the filling tank		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 2
		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 : 2 P : 2

S No.	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools Aids	Duration
		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 : 2 P : 2
		Post Production Cleaning and Maintenance	Demonstrate the process of cleaning and maintenance of work area after production		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 2
		Post Production Cleaning and Maintenance (Contd...)	State the kind of waste produced and its disposal		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 2
5	Food and Safety, Hygiene and Sanitation	Sanitation and Hygiene	State the personal hygiene and sanitation guidelines to follow in a work environment	FIC/N9001	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Sanitation and Hygiene (Contd...)	State the food safety and hygiene standards to follow in a work environment		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 2 P : 4
		Sanitation and Hygiene (Contd...)	List the different sanitisers used in the process area and equipment		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Safety Practices	Follow health and safety practices in the work area		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Good Manufacturing Practices (GMP)	State the importance of safety, hygiene, and sanitation in the food processing industry		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Good Manufacturing Practices (GMP) (Contd...)	Follow the industry standards to maintain a safe and hygiene workplace		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Good Manufacturing Practices (GMP) (Contd...)	State the storage and stock rotation norms		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
		Hazard Analysis and Critical Control Point (HACCP)	Follow HACCP principles to eliminate food safety hazards in the process and products		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 1 P : 2
6	Complete Documentation and Record Keeping	Documentation and Record Keeping	State the need for documenting and maintaining records of raw materials, process, and finished products	FIC/N0104	Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 5 P : 10

S No.	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools Aids	Duration
	Related to Production of Squash and Juice	Documentation and Record Keeping (Contd...)	State the method of documenting and recording the details of raw material to final finished product		Interactive Lecture in the Class	Participant handbook, Projector Whiteboard, Marker, and Duster	T : 5 P : 10
7	Employability Skills	Employability Skills	-	DGT/VSQ/N0101	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
<i>Prepare and maintain work area (for production of squash and juice)</i>	18	32	-	-
PC1. clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, flies and pests	10	15	-	-
PC2. ensure that work area is safe and hygienic for food processing	3	7	-	-
PC3. dispose waste materials as per defined SOP'S and industry requirements	5	10	-	-
<i>Prepare and maintain process machineries and tools (for production of squash and juice)</i>	17	33	-	-
PC4. check the working and performance of all machineries and tools used such as fruit washer, peeler, fruit pulper, juice extractor, clarifier, filter, pasteurizer, steam jacke ted kettles, packaging machines, etc	5	10	-	-
PC5. clean the machineries and tools used with approved sanitizers following organization specifications and standards	5	10	-	-
PC6. place the necessary tools required for process	2	3	-	-
PC7. attend to the minor repairs/ faults of all machines, if required	5	10	-	-
<i>Prepare and maintain work area (for drying/dehydration of fruits and vegetables)</i>	18	32	-	-
PC1. clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, flies and pests	10	15	-	-
PC2. ensure that work area is safe and hygienic for food processing	3	7	-	-
PC3. dispose waste materials as per organisation standards and industry requirements	5	10	-	-
<i>Prepare and maintain process machineries and tools (for drying/dehydration of fruits and vegetables)</i>	17	33	-	-
PC4. check the working and performance of all machineries and tools used for the process such as washer, peeler, corer, slicer, drier, packaging machines, etc.	5	10	-	-

PC5. clean the machineries and tools used with approved sanitizers following the specifications and standards of the organization	5	10	-	-
PC6. place the necessary tools required for process	2	3	-	-
PC7. attend minor repairs/faults of all machines, if required	5	10	-	-
NOS Total	70	130	-	-
<i>Provide support in production planning (for production of squash and juice)</i>	17	28	-	-
PC1. read and understand the production order from the supervisor	4	6	-	-
PC2. check the availability of raw materials, packaging materials, equipment and manpower	2	3	-	-
PC3. support in planning production sequence by: grouping products from types of fruits (pulpy fruits, citrus fruits etc), selecting raw materials that do not impact the quality of the other avoiding cip after each product using the same equipment and machinery for various products planning maximum capacity utilization of machineries considering the process time for each product planning efficient utilization of resources/manpower prioritizing urgent orders	5	10	-	-
PC4. calculate the batch size based on the production order and machine capacity	2	3	-	-
PC5. calculate the raw material requirement (considering the process loss) to produce the required quantity of finished product(s)	2	3	-	-
PC6. calculate the raw materials (including ingredients, if any), packaging materials and manpower requirement for completing the order	2	3	-	-
<i>Plan equipment utilization (for production of squash and juice)</i>	8	17	-	-
PC7. ensure the working and performance of each equipment required for process	2	5	-	-
PC8. calculate the process time for effective utilization of machineries	2	5	-	-
PC9. plan batch size considering full capacity utilization of machineries	1	2	-	-
PC10. plan to utilize machineries for multiple products without affecting the quality of the finished products, and to optimize production and saving energy	1	2	-	-

PC11. allot responsibilities/ work to the assistants and helpers	2	3	-	-
<i>Organize and check equipment's and raw material for carrying out production (for squash and juice)</i>	10	20	-	-
PC12. refer to the process chart/ product flow chart/formulation chart for product(s) produced	1	2	-	-
PC13. weigh the raw materials (including ingredients, if any) required for the batch	1	2	-	-
PC14. check the conformance of raw material quality to company standards, through physical analysis and by referring to the quality analysis report from the supplier / internal lab analysis report	4	6	-	-
PC15. sharpen cutter blades and change the cutter/slicer blades	0.5	1.5	-	-
PC16. fix, change, clean filters and sieves of processing machineries	2	3	-	-
PC17. ensure working and performance of required machineries and tools	1	4	-	-
PC18. keep the tools accessible to attend repairs/faults in case of breakdown	0.5	1.5	-	-
NOS Total	35	65	-	-
<i>Receive, wash, sort and slice fruits</i>	19	33	-	-
PC1. receive fruits from the supplier/vendor, check weight and quality through physical parameters such as appearance, colour, texture, maturity, etc	4	6	-	-
PC2. open valves or start pump to fill water into the washing tank and control water level, dump fruits manually or start elevator conveyor to transfer fruits into washing tank for washing or wash and rinse manually	2	3	-	-
PC3. switch on agitator of revolving screens/blades to immerse each fruit into water to remove dirt, soil and other impurities	5	10	-	-
PC4. start ladder conveyor and control speed to lift fruits from the washing tank and transfer to washing line conveyor	2	3	-	-
PC5. open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on fruits for rinsing	2	3	-	-
PC6. start and adjust speed of sorting/inspecting line conveyor to transfer fruits to inspection station, inspect visually and remove damaged, blemished and rotten fruit; dispose waste following SOP	2	3	-	-

PC7. cut fruits manually or load the fruits in the chopper/cutter/slicer/grating or grinding machine, adjust controls to cut/grate fruits to required size, start machine and then collect sliced/grated fruits from the discharge chute	2	5	-	-
<i>Extract fruit juice</i>	14.5	26.5	-	-
PC8. start the conveyor and control speed to transfer fruits to juice extractors (in case of citrus fruits), crusher and fruit mills (for fruits such as apples, pear, etc.), or stem and seed remover (grapes and berries)	2	5	-	-
PC9. set controls such as speed/rotation of stem and seed remover machine, start machine and feed fruits such as grapes and berries though conveyor to remove stem and seed; dispose waste following SOP	1	2	-	-
PC10. set controls such as speed/rotation, feed rate, etc. of citrus fruit extractor or rotary press machine to extract juice from citrus juice (citrus fruit extractor), start machine and open valves to allow citrus fruits to pass though machine to extract juice; simultaneously remove peel and seeds, collect juice flowing though the discharge outlet in collection tank; dispose waste following SOP	1	2	-	-
PC11. set controls such as speed/rotation of fruit mills (fruit grinding mill/grater mill/ hammer mill) depending on the type of fruit, start machine and open valves to allow fruits such as apple, pear, etc. to pass through machine for grinding fruit into fine gratings	2	3	-	-
PC12. measure enzymes required for batch following formulation chart, pump cut/ grated fruit into reservoir tank and add measured quantity of enzymes (for selected fruits like apple), set timer for fruit-enzyme contact time following SOP and allow to stand for specified time for enzyme activity	1	2	-	-
PC13. adjust controls such as speed/rotation of pressing machines (hydraulic press/ cloth press/ continuous belt press / screw press, etc.), start machine and open valves to allow (enzyme treated) fruits such as apple, pear, etc. to pass through machine for extraction of juice and removal of peel, stem and seeds, collect juice in collection tank; dispose waste following SOP	1	2	-	-
PC14. open valve of start pump to transfer fruit juice to filter for removing small suspended particles (in case of apple, pear, etc.), collect filtered juice in collection tank	4	6	-	-

PC15. change sieves or clean sieves of juice extraction machines to avoid clogging; change or sharpen blades of fruit mills for better grinding	0.5	1.5	-	-
PC16. check the quality of extracted juice through physical parameters such as appearance, colour, consistency, flavour, taste, etc., sample and transfer to quality lab for analysis	2	3	-	-
<i>Pasteurize Juice</i>	1.5	5.5	-	-
PC17. set controls such as temperature, steam pressure, etc. of vacuum concentrate machine; start pump to allow fruit juice to pass thorough machine to concentrate fruit juice and recover aroma (aroma stripping	1	4	-	-
PC18. set process parameters such as pressure, temperature, flow rate, time, etc. of pasteurizer	0.5	1.5	-	-
PC19. open valves to allow steam to pass through pasteurizer, observe temperature and pressure gauge and adjust controls to achieve required pressure and temperature	-	-	-	-
PC20. open valves to allow juice to pass to the pasteurizer, monitor and maintain process parameters throughout the pasteurization process (pasteurize cloudy juice immediately after pressing)	-	-	-	-
PC21. open valves or start pump to circulate water through heat exchangers to cool pasteurized juice, open valves to allow pasteurised juice to pass through heat exchangers to cool to required temperature, collect in collection tank	-	-	-	-
<i>Clarify Juice</i>	-	-	-	-
PC22. measure enzymes required for clarification of juice following formulation chart, add to the pasteurized juice in the collection tank (for obtaining clear juice), start stirrer and control speed for uniform mixing of enzymes	-	-	-	-
PC23. open valves or start pump to allow enzyme treated juice to pass through ultra filtration unit to remove smallest particles and obtain clear juice	-	-	-	-
PC24. check quality of juice through physical parameters such as colour, appearance, flavour, taste, etc., sample and transfer to lab for quality analysis and to ensure conformance to standards	-	-	-	-
PC25. pump processed juice to the holding /reservoir tanks and store maintaining storage parameters until packaging or further processing (to prepare squash)	-	-	-	-
<i>Prepare Squash</i>	-	-	-	-

PC26. open valve to admit measured quantity of water into steam jacketed kettle/tank, observe gauge or designated mark for filled quantity	-	-	-	-
PC27. measure sugar (add acids if specified in the formulation) and add it to water in the kettle/tank to prepare sugar syrup, turn on mixer/agitator and control speed to mix ingredients	-	-	-	-
PC28. turn valves to admit steam into kettle/tank, set required pressure, temperature and time to heat the solution following sop, observe pressure and temperature gauge, adjust valves to maintain set parameters	-	-	-	-
PC29. check sugar syrup using refractometer instrument to conform its specifications to standards, open valves or start pump to allow sugar syrup to pass through filter to remove undesirable particles and sediments, collect filtered sugar syrup in storage or holding tanks	-	-	-	-
PC30. start pump to transfer measured quantity of (single or multiple fruit) juice concentrate or clarified juice (depending on type of product produced) , water, sugar syrup into blending tank; check pumped quantity through the level indicator and glass windows of the tank, add measured quantity of acids, preservatives, colour, flavor, etc. following sop, set controls of stirrer/agitator (mixing speed, mixing time, etc.) and start mixer, observe mixing process, collect sample and check physical parameters to ensure uniform mixing	-	-	-	-
PC31. adjust controls to set temperature, pressure, etc. of pasteurizer/heat exchanger; turn valves to admit steam, start pump to transfer blended product into pasteurizer/heat exchanger, check dials and adjust gauges to control process parameters, open valves to allow water to pass thorough heat exchanger to cool product, open valves to collect finished product in storage tank, to hold until packaging	-	-	-	-
PC32. check the quality of finished product through physical parameters (appearance, colour, consistency, flavour, taste etc.), sample and transfer to quality lab for analysis and to ensure conformance to quality standards	-	-	-	-
<i>Fill, pack and store juice and squash</i>	-	-	-	-
PC33. start pump to transfer finished product into the filling tank of packaging machine	-	-	-	-

PC34. load packing materials (tetra packs, glass bottles, plastic containers, etc.) in packaging machine, sealing materials (caps, lids, crowns, etc.) in sealing machine, labels in labelling machine; set machine for filling volume, set date coding machine for date code details (batch number, date of manufacture, date of expiry, etc.)	-	-	-	-
PC35. start automatic packaging machine to form packaging materials, wash bottle/plastic containers, fill measured quantity of finished products, close/seal and label, check the weight of packed product periodically to ensure its conformance to standards	-	-	-	-
PC36. set controls of straw attaching machine and start machine to attach straw in the packaging material (like tetra pack) of packed product	-	-	-	-
PC37. place packed and labelled products in cartons and transfer to storage area and store maintaining storage conditions following SOP	-	-	-	-
PC38. report discrepancies/concerns to department supervisor for immediate action	-	-	-	-
<i>Carry out post production cleaning and regular maintenance of equipment</i>	-	-	-	-
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 following the sop or following suppliers instructions/manuals	-	-	-	-
NOS Total	35	65	-	-
<i>Document and maintain records of raw materials (for production of squash and juice)</i>	15	10	-	-
PC1. document and maintain record of details of raw materials and packaging materials (name of raw materials, type and variety, vendor/supplier details, season, grown area, quantity, receiving date, supplier details, receiving date/ date of manufacture, expiry date, supplier quality document, quality parameters of all raw materials, internal quality analysis report, etc.) as per organisation standards	6	4	-	-
PC2. document and maintain record on observations (if any) related to raw materials and packaging materials	3	2	-	-





PC3. load the raw materials details in ERP for future reference	3	2	-	-
PC4. verify the documents and track from finished product to raw materials, in case of quality concerns and during quality management system audits	3	2	-	-
<i>Document and maintain records of production schedule and process parameters (for production of squash and juice)</i>	30	20	-	-
PC5. document and maintain records of production plan with details (product details, production sequence, equipments and machinery details, efficiency and capacity utilization of equipment)	6	4	-	-
PC6. document and maintain records of process details (type or raw material used, process parameters such as temperature, time, pressure, etc. as applicable) for entire production in process chart or production log for all products produced	9	6	-	-
PC7. document and maintain records of batch size, production yield, wastage of raw materials, energy utilization and final products produced	6	4	-	-
PC8. document and maintain record of observations (if any) or deviations related to process and production	3	2	-	-
PC9. load the production plan and process details in ERP for future reference	3	2	-	-
PC10. verify documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits	3	2	-	-
<i>Document and maintain records of the finished products (for production of squash and juice)</i>	15	10	-	-
PC11. document and maintain records of the types of finished products produced	2	1	-	-
PC12. document and maintain records of the finished products details (batch number, time of packing, date of manufacture, date of expiry, other label details, primary,secondary and tertiary packaging materials, storage conditions, etc.)as per organisation standards	4	3	-	-
PC13. document and maintain record on observations or deviations (if any) related to finished products	3	2	-	-
PC14. load the finished product details in ERP for future reference	3	2	-	-
PC15. verify the documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits	3	2	-	-






NOS Total	60	40	-	-
<i>Perform safety and sanitation related functions (for processing food products)</i>	25	50	-	-
PC1. comply with food safety and hygiene procedures followed in the organization	2	3	-	-
PC2. ensure personal hygiene by use of gloves, hairnets, masks, ear plugs, goggles, shoes, etc.	1	5	-	-
PC3. ensure hygienic production of food by inspecting raw materials, ingredients, finished products etc. for compliance to physical, chemical and microbiological parameters	2	3	-	-
PC4. pack products in appropriate packaging materials, label and store them in designated area, free from pests, flies and infestations	4	6	-	-
PC5. clean, maintain and monitor food processing equipment periodically, using it only for the specified purpose	2	3	-	-
PC6. use safety equipment such as fire extinguisher, eye wash unit, first aid kit when required	4	6	-	-
PC7. follow housekeeping practices by having designated area for machines/tools	2	3	-	-
PC8. follow industry standards like GMP, HACCP and product recall process	4	6	-	-
PC9. attend training on hazard management to understand types of hazards such as physical, chemical and biological hazards and measures to control and prevent them	1	4	-	-
PC10. Identify, document and report problems such as rodents and pests to management	1	4	-	-
PC11. conduct workplace checklist audit before and after work to ensure safety and hygiene	1	4	-	-
PC12. document and maintain raw material, packaging material, process and finished products for the credibility and effectiveness of the food safety control system	1	3	-	-
<i>Apply food safety practices (for processing food products)</i>	10	15	-	-
PC13. determine the quality of food using criteria such as odour, appearance, taste and best before date, and take immediate measures to prevent spoilage	2	3	-	-
PC14. store raw materials, finished products and allergens separately to prevent cross contamination	2	3	-	-



PC15. label raw materials and finished products and store them in different storage areas according to safe food practices	2	3	-	-
PC16. follow stock rotation based on FEFO/FIFO	4	6	-	-
NOS Total	35	65	-	-
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
<i>Constitutional values – Citizenship</i>	1	1	-	-
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	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.	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	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	-	-	-	-
<i>Essential Digital Skills</i>	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	-	-	-	-
<i>Entrepreneurship</i>	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	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	-	-

Annexure - III QR Code

Chapter Name	Unit Name	Topic Name	URL	Pg. No.	QR Code
Chapter 1: Introduction	Unit 1.2: Introduction to the Food Processing Industry	1.2.1 Food Processing	https://youtu.be/wMu0EpUgCd4	07	 Introduction to the Food Processing Industry
		1.2.2 Journey of Food from Harvest to Consumer			
	Unit 1.3: Introduction to Fruit and Vegetable Processing	1.3.1 Overview of the Fruit and Vegetable Sub-Sector	https://youtu.be/iacTHJtrXIE	10	 Overview of the Fruit and Vegetable Sub-Sector
Chapter 2: Prepare and Maintain Work Area and Process Machineryes for Squash and Juice Processing	Unit 2.2: Sanitisation of the Work Area	1.4.1 Beverage Industry	https://youtu.be/_bs_--89szA	16	 Orientation Video - Squash and Juice Processing Technician
		Unit 1.4: Orientation Video of Squash and Juice Processing Technician			
		2.2.1 Cleaning & Sanitizing Work Area, Machinery, Tools, and Equipment	https://youtu.be/QWpU7DAfNcs	25	 Hygiene and sanitation Practices

Chapter 4: Produce Squash and Juice	Unit 4.4 Filling, Packing and Storage of Juice and Squash	Food Packaging	https://youtu.be/osA74cAqMLc	73	 Introduction to Packaging
	Unit 4.5: Post Production Cleaning and Maintenanc e	4.5.1 Post Production Cleaning of Work Area and Machinery	https://youtu.be/CD0XLUutibk	81	 Cleaning Facilities
		4.5.3 Waste Management	https://www.youtube.com/watch?v=nrEOtxjwKsQ	85	 Waste Management
Chapter 5: Food and Safety, Hygiene and Sanitation	Unit 5.1: Sanitation and Hygiene	5.1.1 Personal Sanita	https://youtu.be/gNEx8P9UqPA	92	 Personnel Hygiene & Personal Behaviour
	Unit 5.3: Good Manufacturi ng Practices (GMP)	5.3.1 Good Manufactur ing Pracitices	https://youtu.be/RS4A-uczS6E	97	 Good Manufacturing Practices, Good Hygiene Practices and Food Safety Management Systems.

Chapter 6: Complete Documentation and Record Keeping Related to production of Squash and Juice	Unit 6.1 – Documentation and Record Keeping	6.1.1 Need for Documentation	https://youtu.be/kcpGIHBpphA	104	 <p>Audit, Documentation & Record Keeping</p>
		6.1.2 How to Keep Records?	https://youtu.be/kcpGIHBpphA		
Chapter11: Employability Skills	-	-	https://www.skillsindia.digital.gov.in/content/list		 <p>Employability Skills</p>



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