Model Curriculum

QP Name: Fruits and Vegetables Product Producer

QP Code: STC - AGR/NSQF-2022/0230

QP Version: 2.0

NSQF Level: 3

Model Curriculum Version: 2.0

West Bengal State Council of Technical & Vocational Education and Skill Development, Karigari Bhavan, (5th Floor), Plot-B/7, Action Area-III, New Town, Kolkata-700160

Table of Contents

Training Parameters

Sector	Agriculture
Sub-Sector	Fruit & Vegetables
Occupation	Fruits and Vegetables Product Producer
Country	India
NSQF Level	3
Aligned to NCO/ISCO/ISIC Code	7514.9900
Minimum Educational Qualification and Experience	1. Grade 10 OR 2. Grade 8 pass and pursuing continuous schooling in regular school with vocational subject OR 3. Grade 8 Pass with 2 year experience OR 4. 5th Grade Pass with 5 yrs experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 years
Last Reviewed On	3.5.2023
Next Review Date	3.5.2026
Version	2.0
NSQC Approval Date	3.5.2023
Model Curriculum Creation Date	3.5.2023
Model Curriculum Valid Up to Date	3.5.2026
Model Curriculum Version	2.0
Minimum Duration of the Course	600 hours
Maximum Duration of the Course	600 hours

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

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

- Apply safe working practices
- Identify and select fresh fruits and vegetables with the help of checklist.
- Identify the spoilage in fruits and vegetables and state the reason for the spoilage.
- Recognize the different raw materials which will be Identify as spices and food additives by visual inspection.
- Prepare and pack perishables for storage with safety precautions.
- Prepare fruit juices with juice extracting machines with safety precautions and preserve fruit juices with addition of preservatives and determine the acidity and TSS content.
- Prepare and package fruit beverages such as Squashes, RTS, Nectar, Cordial, Crush and Syrup by using appropriate machines such as pulper, juice extractor, autoclave, and corking machine with safety precautions, determine the acidity and TSS content
- Prepare and preserve Tomato products by using appropriate machines such as pulper, Autoclave, and corking machine with safety precautions, determine acidity and TSS content.
- Prepare, dry and storage fruits and vegetables with appropriate methods such as drying, cabinet drying and solar drying with safety precautions and determine the moisture.
- Prepare, preserve and store jam, jelly and marmalades by using appropriate machines such as pulper, autoclave & sealer with safety precautions, determine acidity and TSS content, pectin test.
- Demonstrate the Canning process of fruits and vegetables and Identify defects by physical observation & its causes in canned foods and explain food safety standards.
- Prepare fruits/vegetables pickles with oil/salt/vinegar/spices, determine acidity content. Able to work in real job situation with special emphasis on basic safety and hazards in this domain

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/0230/OC1 **Apply Safe Working Practices** **NOS Version No.: 2.0** **NSQF Level: 3**	**10:00 Hours**	**20:00 Hours**	**00:00Hours**	**00:00Hours**	**30:00 Hours**
Module1: Apply Safe Working Practices	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0230/OC2 Identify and select fresh fruits and vegetables with the help of checklist. **NOS Version No. :2.0** **NSQF Level:3**	**10:00 Hours**	**20:00 Hours**	**00:00Hours**	**00:00Hours**	**30:00 Hours**
Module2: Identify and select fresh fruits and vegetables with the help of checklist.	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0230/OC3 Identify the spoilage in fruits and vegetables and state the reason for the spoilage. **NOS Version No.:2.0** **NSQF Level: 3**	**10:00 Hours**	**20:00 Hours**	**00:00Hours**	**00:00Hours**	**30:00 Hours**
Module3: Identify the spoilage in fruits and vegetables and state the reason for the spoilage.	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0230/OC4 Recognize the different raw materials which will be Identify as spices and food additives by visual inspection. **NOS Version No.:2.0** **NSQF Level:3**	**10:00 Hours**	**20:00 Hours**	**00:00Hours**	**00:00Hours**	**30:00 Hours**
Module 4: Recognize the different raw materials which will be Identify as spices and food additives by visual inspection.	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours

AGR/0230/OC5 Prepare and pack perishables for storage with safety precautions. **NOS Version No.:2.0** **NSQF Level: 3**	**10:00 Hours**	**20:00 Hours**	**00:00Hours**	**00:00Hours**	**30:00 Hours**
Module 5: Prepare and pack perishables for storage with safety precautions.	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0230/OC6 Prepare fruit juices with juice extracting machines with safety precautions and preserve fruit juices with addition of preservatives and determine the acidity and TSS content. **NOS Version No.: 2.0** **NSQF Level: 3**	**05:00 Hours**	**25:00 Hours**	**00:00Hours**	**00:00Hours**	**30:00 Hours**
Module 6: Prepare fruit juices with juice extracting machines with safety precautions and preserve fruit juices with addition of preservatives and determine the acidity and TSS content.	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0230/OC7 Prepare and package fruit beverages such as Squashes, RTS, Nectar, Cordial, Crush and Syrup by using appropriate machines such as pulper, juice extractor, autoclave, and corking machine with safety precautions, determine the acidity and TSS content **NOS Version No.:2.0** **NSQF Level: 3**	**10:00 Hours**	**20:00 Hours**	**00:00Hours**	**00:00Hours**	**30:00 Hours**
Module 7:Prepare and package fruit beverages such as Squashes, RTS, Nectar, Cordial, Crush and Syrup by using appropriate machines such as pulper, juice extractor, autoclave, and corking machine with safety precautions, determine the acidity and TSS content	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours

AGR/0230/OC8 Prepare and preserve Tomato products by using appropriate machines such as pulper, Autoclave, and corking machine with safety precautions, determine acidity and TSS content. **NOS Version No.: 2.0** **NSQF Level: 3**	**10:00 Hours**	**20:00 Hours**	**00:00Hours**	**00:00Hours**	**30:00 Hours**
Module 8: Prepare and preserve Tomato products by using appropriate machines such as pulper, Autoclave, and corking machine with safety precautions, determine acidity and TSS content.	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0230/OC9 Prepare, dry and storage fruits and vegetables with appropriate methods such as drying, cabinet drying and solar drying with safety precautions and determine the moisture. **NOS Version No.: 2.0** **NSQF Level: 3**	**10:00 Hours**	**20:00 Hours**	**00:00Hours**	**00:00Hours**	**30:00 Hours**
Module 9: Prepare, dry and storage fruits and vegetables with appropriate methods such as drying, cabinet drying and solar drying with safety precautions and determine the moisture.	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0230/OC10 Prepare, preserve and store jam, jelly and marmalades by using appropriate machines such as pulper, autoclave & sealer with safety precautions, determine acidity and TSS content, pectin test. **NOS Version No.: 2.0** **NSQF Level: 3**	**20:00 Hours**	**40:00 Hours**	**00:00Hours**	**00:00Hours**	**60:00 Hours**
Module 10: Prepare, preserve and store jam, jelly and marmalades by using appropriate machines such as pulper, autoclave & sealer with safety precautions, determine acidity and TSS content, pectin test.	20:00 Hours	40:00 Hours	00:00Hours	00:00Hours	60:00 Hours
AGR/0230/OC11 Demonstrate the Canning process of	**10:00 Hours**	**20:00 Hours**	**00:00Hours**	**00:00Hours**	**30:00 Hours**

fruits and vegetables and Identify defects by physical observation & its causes in canned foods and explain food safety standards. **NOS Version No.: 2.0** **NSQF Level: 3**					
Module 11: Demonstrate the Canning process of fruits and vegetables and Identify defects by physical observation & its causes in canned foods and explain food safety standards.	10:00 Hours	20:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0230/OC12 Prepare fruits/vegetables pickles with oil/salt/vinegar/spices, determine acidity content. **NOS Version No.: 2.0** **NSQF Level: 3**	**05:00 Hours**	**25:00 Hours**	**00:00Hours**	**00:00Hours**	**30:00 Hours**
Module 12: Prepare fruits/vegetables pickles with oil/salt/vinegar/spices, determine acidity content.	05:00 Hours	25:00 Hours	00:00Hours	00:00Hours	30:00 Hours
AGR/0230/OC13 **Work in real job situation with special emphasis on basic safety and hazards in this domain.** **NOS Version No.: 2.0** **NSQF Level: 3**	**00:00 Hours**	**00:00 Hours**	**150:00Hours**	**00:00Hours**	**150:00 Hours**
Module 13: Work in real job situation with special emphasis on basic safety and hazards in this domain.	00:00 Hours	00.00 Hours	150:00Hours	00:00Hours	150:00 Hours
DGT/VSQ/N0102 **Employability Skills** **NOS Version No.: 1.0** **NSQF Level: 3**	**60:00 Hours**		**00:00Hours**	**00:00Hours**	**60:00 Hours**
Module 14: Employability Skills			00:00Hours	00:00Hours	60:00 Hours
Total Duration	**180:00 Hours**	**270:00 Hours**	**150:00Hours**	**00:00Hours**	**600:00 Hours**

Module Details

Module1: Apply Safe Working Practices

Mapped to AGR/0230/OC1,V2.0

Terminal Outcomes:

- Apply and maintain Safe Working Practices
- Recognize any unsafe situations according to site policy.
- Identify fire and safety and fire hazards
- Identify different fire extinguishers and use them as per requirements.

Duration: *10:00*	**Duration**: *20:00*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
• Maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements according to site policy. • Recognize any unsafe situations according to site policy, and assess his report accordingly. • Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures.	• Recognize any unsafe situations according to site policy, and assess his report accordingly. • Demonstrate Personal Protective Equipment (PPE) like: safety helmet, safety glove, and safety shoe, use the same as per related working environment. • Demonstrate basic first aid & CPR and use them under different circumstances. • Identify different fire extinguishers and use the same as per requirement in a mock drill.
Classroom Aids: Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements: First Aid box, Different types of fire extinguishers, PPE kits, Safety charts.	

Module2: Identify and select fresh fruits and vegetables with the help of checklist

Mapped to AGR/0230/OC2,***V2.0***

Terminal Outcomes:

- Identify different fruits and vegetables
- Prepare selection criteria check list for fruits and vegetables.
- Select fresh fruits and vegetables

Duration:*10:00*	**Duration**: *20:00*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
The students will be able to describe the followings:- ● Selection of raw materials including fruits and vegetables for Preparation of various products. ● Spices and other constituents, their properties, condiments and other additives and ingredient and their flavouring and preservative properties.	The students will be able to demonstrate the followings:- ● Identify different fruits and vegetables ● Prepare selection criteria check list for fruits and vegetables. ● Select fresh fruits and vegetables
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Digital electronics balance, capacity : 5mg-210gm, accuracy 0.001gm, Physical rough balance Capacity=30Kg.	

Module 3: Identify the spoilage in fruits and vegetables and state the reason for the spoilage.

Mapped to AGR/0230/OC3,*V2.0*

Terminal Outcomes:

- Observe the spoiled fruits and vegetables and its products
- Identify and record the cause of spoilage.

Duration:10:00	**Duration:20:00**
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
The students will be able to describe the following: ● Definition and scope of preservation. Different types of spoilages in fresh fruits and vegetables. ● General principles and methods of food preservation.	The student will be able to do the following: ● Different types of spoilages in fresh fruits and vegetables. ● General principles and methods of food preservation. ● Identify and record the cause of spoilage
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Refrigerator with stabilizer, 240lit, Potable temperature indicator Temp range- 0°C to 100.00◦C, resolution=0.1°C, Plastic jar of different size, Plastic pouch with zip.	

Module 4: Recognize the different raw materials which will be identify as spices and food additives by visual inspection.

Mapped to AGR/0230/OC4,*V2.0*

Terminal Outcomes:

- Identify spices
- Identify food additives
- Select the raw materials

Duration: *10:00*	**Duration**: *20:00*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
The student will describe the methods of ● Identification of spices and food additives used in fruits and vegetable processing.	The students will demonstrate the method of ● Identification of spices and food additives used in fruits and vegetable processing.
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Digital electronics balance, capacity : 5mg-210gm, accuracy 0.001gm, Physical rough balance Capacity=30Kg.Refrigerator with stabilizer, 240lit, Potable temperature indicator Temp range- 0°C to 100.00◦C, resolution=0.1°C, Plastic jar of different size, Plastic pouch with zip.	

Module 5: Prepare and pack perishables for storage with safety precautions.

Mapped to AGR/0230/OC5,***V2.0***

Terminal Outcomes:

- Prepare fruits/vegetables for Refrigeration
- Fill and seal the fruits/vegetables into packaging material.
- Store under refrigerated condition

Duration: *10:00*	**Duration**: *20:00*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
The students will be able to describe: ● Storage of fresh fruits and vegetable. ● Methods and containers used in fresh fruits and vegetable preservation	The students will be able to demonstrate: ● Prepare fruit and vegetables for refrigeration. ● Storage of fresh fruits and vegetable. Methods and ● Identify containers used in fresh fruits and vegetable preservation
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Digital electronics balance, capacity : 5mg-210gm, accuracy 0.001gm, Physical rough balance Capacity=30Kg.Refrigerator with stabilizer, 240lit, Potable temperature indicator Temp range- 0°C to 100.00◦C, resolution=0.1°C, Plastic jar of different size, Plastic pouch with zip.	

Module 6: Prepare fruit juices with juice extracting machines with safety precautions and preserve fruit juices with addition of preservatives and determine the acidity and TSS content.

Mapped to AGR/0230/OC6,*V2.0*

Terminal Outcomes:

- Maintain the perfect hygiene standard
- Select perfect fruits
- Prepare fruits juice
- Measure juice
- Determine TSS and acidity
- Fill the preserved fruit juices in sterilized bottles,
- Cork and crown the bottles
- Label the bottles.

Duration: *05:00*	**Duration**: *25:00*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
The student will be able to describe the following:- • Technology of extraction of juices from different types of fruits. • Definition of Preservatives-types of preservatives commonly used in food industry limits of usage of preservatives	The students will be able to do the following activities: • Preparation of Fruit Juice. Preservation of fruits juices with addition of preservative. • Preparation of common fruit beverages. Determination of Acids in fruits and vegetable products • Preparation of tomato juices, puree, sauces, ketchups, soup, paste, chutney etc.
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Test tube ,borosilicate glass, Beaker, graduated , borosilicate glass, Pipette , graduated , borosilicate glass, borosilicate glass (with ptfe stoppered), Volumetric Flask , Porcelain basin 4 inch dia, Reagent bottle, Fruit miller, hand operated or ½ HP motor operated laboratory model, Screw type juice extractor, made 304SS laboratory model, hand operated or ½ HP motor operated. Mixer grinder,600watt, pH paper, E Merck,1.00-14.00, 10 bks, Litmus paper, red& blue,Emerck,Ordinary Filter paper, 125mm dia. Tissue paper roll	

Module 7: Prepare and package fruit beverages such as Squashes, RTS, Nectar, Cordial, Crush and Syrup by using appropriate machines such as pulper, juice extractor, autoclave, and corking machine with safety precautions, determine the acidity and TSS content

Mapped to AGR/0230/OC7,V2.0

Terminal Outcomes:

- Maintain perfect hygiene standard
- Identify and select perfect fruits
- Prepare fruits for juice extraction
- Prepare fruit juice
- Measure fresh fruit juice
- Determine TSS and Acidity
- Perform calculations for Squashes, RTS, Nectar, Cordial, Crush and Syrup preparation and mixing of ingredients
- Fill beverage into sterilized bottles
- Cork and crown the bottles

Duration: *10:00*	**Duration**: *20:00*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
The student will be able to describe the following:- ● Fruit beverages: Squashes, syrups, nectars, RTS, crushes, cordial etc. ● Tomato products: Technology of manufacture of tomato products. ● Definition of preserves, candied fruits, glazed fruits, crystallized fruits- methods of preparation of these. ● Study of various types of containers like Glass, Tin merits and demerits of each-scope for new types of containers/ packaging materials, such as plastic pouches, tetra pack, PET bottle and cartons. ● Understanding the label its importance, and labelling requirements	The student will be able to describe the following:- ● Fruit beverages: Squashes, syrups, nectars, RTS, crushes, cordial etc. ● Tomato products: Technology of manufacture of tomato products. ● Definition of preserves, candied fruits, glazed fruits, crystallized fruits- methods of preparation of these. ● Study of various types of containers like Glass, Tin merits and demerits of each-scope for new types of containers/ packaging materials, such as plastic pouches, tetra pack, PET bottle and cartons. ● Understanding the label its importance, and labelling requirements
Classroom Aids: Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook	

Tools, Equipment and Other Requirements
Test tube ,borosilicate glass, Beaker, graduated , borosilicate glass, Pipette , graduated , borosilicate glass, borosilicate glass (with ptfe stoppered), Volumetric Flask , Porcelain basin 4 inch dia, Reagent bottle, Fruit miller, hand operated or ½ HP motor operated laboratory model, Screw type juice extractor, made 304SS laboratory model, hand operated or ½ HP motor operated. Mixer grinder,600watt, pH paper, E Merck,1.00-14.00, 10 bks, Litmus paper, red& blue,Emerck,Ordinary Filter paper, 125mm dia. Tissue paper roll, Refrigerator with stabilizer , 240lit, Blanching Unit (SS made) with steam charging, . Lab model, totally made of AISI Stainless Steel 304 Quality of 20gauge, Perforated SS tray and SS Busket, digital temp controller. Electrically operated, SS, capacity 30 cans at a time. Fruit pulper, laboratory model. Contacts parts are made of 304SS, With 1/32 sieve, ½ HP motor operated, with nylon brush. Jug SS, Plastic jar of different size, Glass jar with plastic cap for fruit juice, sauce etc. 250ml and 500ml. Stainless steel knives, 12-15 cm blade Stainless steel pots of different capacities.

Module 8: Prepare and preserve Tomato products by using appropriate machines such as pulper, Autoclave, and corking machine with safety precautions, determine acidity and TSS content.

Mapped to AGR/0230/OC8,*V2.0*

Terminal Outcomes:

- Maintain perfect hygiene standard
- Prepare tomato juice/ tomato puree/tomato paste/ tomato sauce/tomato ketchup/tomato chutney/tomato soup
- Preserve and store tomato juice/ tomato puree/tomato paste/ tomato sauce/tomato ketchup/tomato chutney/tomato soup.
- Determine TSS and acidity

Duration: *05:00*	**Duration**: *25:00*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
The students will describe the methods of the followings: ● Tomato products: Technology of manufacture of tomato products. ● Maintain perfect hygiene standard ● Prepare tomato juice/ tomato puree/tomato paste/ tomato sauce/tomato ketchup/tomato chutney/tomato soup ● Preserve and store tomato juice/ tomato puree/tomato paste/ tomato sauce/tomato ketchup/tomato chutney/tomato soup. ● Determine TSS and acidity	The students will be able to demonstrate the followings: ● Tomato products: Technology of manufacture of tomato products. ● Maintain perfect hygiene standard ● Prepare tomato juice/ tomato puree/tomato paste/ tomato sauce/tomato ketchup/tomato chutney/tomato soup ● Preserve and store tomato juice/ tomato puree/tomato paste/ tomato sauce/tomato ketchup/tomato chutney/tomato soup. ● Determine TSS and acidity
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Test tube ,borosilicate glass, Beaker, graduated , borosilicate glass, Pipette , graduated , borosilicate glass, borosilicate glass (with ptfe stoppered), Volumetric Flask , Porcelain basin 4 inch dia, Reagent bottle, Fruit miller, hand operated or ½ HP motor operated laboratory model, Screw type juice extractor, made 304SS laboratory model, hand operated or ½ HP motor operated. Mixer grinder,600watt, pH paper, E Merck,1.00-14.00, 10 bks, Litmus paper, red& blue,Emerck,Ordinary Filter paper, 125mm dia. Tissue paper roll, Refrigerator with stabilizer , 240lit, Blanching Unit (SS	

made) with steam charging, . Lab model, totally made of AISI Stainless Steel 304 Quality of 20gauge, Perforated SS tray and SS Busket, digital temp controller. Electrically operated, SS, capacity 30 cans at a time. Fruit pulper, laboratory model. Contacts parts are made of 304SS, With 1/32 sieve, ½ HP motor operated, with nylon brush. Jug SS, Plastic jar of different size, Glass jar with plastic cap for fruit juice, sauce etc. 250ml and 500ml. Stainless steel knives, 12-15 cm blade
Stainless steel pots of different capacities.

Module 9: Prepare, dry and storage fruits and vegetables with appropriate methods such as drying, cabinet drying and solar drying with safety precautions and determine the moisture.

Mapped to AGR/0230/OC9,V2.0

Terminal Outcomes:

- Maintain perfect hygiene standard
- Select fruits/vegetables for drying
- prepare fruits/vegetables for drying
- Dry the fruits/vegetables by sun drying/ cabinet drying /solar drying.
- Determine the moisture content.
- Pack and store

Duration: *10:00*	**Duration**: *20:00*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
● Procedure of selection of fruits/vegetables for drying ● Methods of prepare fruits/vegetables for drying ● Dry the fruits/vegetables by sun drying/ cabinet drying /solar drying. ● Determine the moisture content. ● Pack and store	● Maintain perfect hygiene standard ● Select fruits/vegetables for drying ● prepare fruits/vegetables for drying ● Dry the fruits/vegetables by sun drying/ cabinet drying /solar drying. ● Determine the moisture content. ● Pack and store
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Test tube ,borosilicate glass, Beaker, graduated , borosilicate glass, Pipette , graduated , borosilicate glass, borosilicate glass (with ptfe stoppered), Volumetric Flask , Porcelain basin 4 inch dia, Reagent bottle, Fruit miller, hand operated or ½ HP motor operated laboratory model, Screw type juice extractor, made 304SS laboratory model, hand operated or ½ HP motor operated. Mixer grinder,600watt, pH paper, E Merck,1.00-14.00, 10 bks, Litmus paper, red& blue,Emerck,Ordinary Filter paper, 125mm dia. Tissue paper roll, Refrigerator with stabilizer , 240lit, Blanching Unit (SS made) with steam charging, . Lab model, totally made of AISI Stainless Steel 304 Quality of 20gauge, Perforated SS tray and SS Busket, digital temp controller. Electrically operated, SS, capacity 30 cans at a time. Fruit pulper, laboratory model. Contacts parts are made of 304SS, With 1/32 sieve, ½ HP motor operated, with nylon brush. Jug SS, Plastic jar of different size, Glass jar with plastic cap for fruit juice, sauce etc. 250ml and 500ml. Stainless steel knives, 12-15 cm blade Stainless steel pots of different capacities.	

Tray dryer, horizontal cross air flow system, inner 304SS wall of 20gauge & with six 304SS tray of 18gauge Tray size : (16''x32''x1'')inch. Solid SS tray/perforated SS tray / wire net SS try, all trays adjustable type with gape of 6'' per tray. Digital PID type temperature controller. Temperature range 50˚-300˚C with accuracy ±1˚C.

Module 10*:* Prepare, preserve and store jam, jelly and marmalades by using appropriate machines such as pulper, autoclave & sealer with safety precautions, determine acidity and TSS content, pectin test.

Mapped to AGR/0230/OC10,V2.0

Terminal Outcomes:

- Maintain perfect hygiene standard
- Select fruits
- Prepare fruit
- Prepare fruit juice for fruit jelly
- Pectin test of fruit juice
- prepare jam/jelly/marmalades
- Determine the end point for jam/jelly/marmalades.
- Identify the consistency
- For jam/jelly/marmalades.
- Preserve and store jam/jelly/marmalades.

Duration: *20:00*	**Duration**: *40:00*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
● Technology of extraction of juices from different types of fruits. Definition of Preservatives-types of preservatives commonly used in food industry limits of usage of preservatives ● Jams, Jellies and marmalades: selection, preparation, production and preservation. ● Difference in between jam and jelly. ● Definition of preserves, candied fruits, glazed fruits, crystallized fruits-methods of preparation of these. ● Importance of personal Hygiene, Cleaning & Sanitary standards in Fruits and Vegetable preservation. Good Handling Processes (GHP), Traceability aspects of processed product.	● Preparation of Fruit Juice. Preservation of fruits juices with addition of preservative. ● Preparation of common fruit beverages. Determination of Acids in fruits and vegetable products ● Preparation of tomato juices, puree, sauces, ketchups, soup, paste, chutney etc. ● Preparation of Jam, jelly and marmalades ● Preparation of preserves, candies, crystallized and glazed and fruit bars.

Classroom Aids:
Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook
Tools, Equipment and Other Requirements
Test tube ,borosilicate glass, Beaker, graduated , borosilicate glass, Pipette , graduated , borosilicate glass, borosilicate glass (with ptfe stoppered), Volumetric Flask , Porcelain basin 4 inch dia, Reagent bottle, Fruit miller, hand operated or ½ HP motor operated laboratory model, Screw type juice extractor, made 304SS laboratory model, hand operated or ½ HP motor operated. Mixer grinder,600watt, pH paper, E Merck,1.00-14.00, 10 bks, Litmus paper, red& blue,Emerck,Ordinary Filter paper, 125mm dia. Tissue paper roll, Refrigerator with stabilizer , 240lit, Blanching Unit (SS made) with steam charging, . Lab model, totally made of AISI Stainless Steel 304 Quality of 20gauge, Perforated SS tray and SS Busket, digital temp controller. Electrically operated, SS, capacity 30 cans at a time. Fruit pulper, laboratory model. Contacts parts are made of 304SS, With 1/32 sieve, ½ HP motor operated, with nylon brush. Jug SS, Plastic jar of different size, Glass jar with plastic cap for fruit juice, sauce etc. 250ml and 500ml. Stainless steel knives, 12-15 cm blade Stainless steel pots of different capacities. Tray dryer, horizontal cross air flow system, inner 304SS wall of 20gauge & with six 304SS tray of 18gauge Tray size : (16''x32''x1'')inch. Solid SS tray/perforated SS tray / wire net SS try, all trays adjustable type with gape of 6'' per tray. Digital PID type temperature controller. Temperature range 50˚-300˚C with accuracy ±1˚C.

Module 11: Demonstrate the Canning process of fruits and vegetables and Identify defects by physical observation & its causes in canned foods and explain food safety standards.

Mapped to AGR/0230/OC11,V2.0

Terminal Outcomes:

- Explain process of canning, causes of defects in canned foods.
- State the food safety standards.

Duration: *10:00*	**Duration**: *20:00*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
● Definition of preserves, candied fruits, glazed fruits, crystallized fruits-methods of preparation of these. ● Canning of fruits and vegetables-principles, procedure and steps involved- care in handling of common available fruits and vegetables in the region. ● Study of Frozen Fruits and Vegetables, Blanching and Freezing.	● Demonstration of Canning process in fruits and vegetables canning industry. Identification of effective cans, Precautions while consuming the canned foods. ● Freezing demonstration on market sample of frozen fruits and vegetables

Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Test tube ,borosilicate glass, Beaker, graduated , borosilicate glass, Pipette , graduated , borosilicate glass, borosilicate glass (with ptfe stoppered), Volumetric Flask , Porcelain basin 4 inch dia, Reagent bottle, Fruit miller, hand operated or ½ HP motor operated laboratory model, Screw type juice extractor, made 304SS laboratory model, hand operated or ½ HP motor operated. Mixer grinder,600watt, pH paper, E Merck,1.00-14.00, 10 bks, Litmus paper, red& blue,Emerck,Ordinary Filter paper, 125mm dia. Tissue paper roll, Refrigerator with stabilizer , 240lit, Jug SS, Plastic jar of different size, Glass jar with plastic cap for fruit juice, sauce etc. 250ml and 500ml. Stainless steel knives, 12-15 cm blade. Stainless steel pots of different capacities. Can seaming machine,1 ADS 1 H.P. motor operated with 300, 401 seaming roller& seaming chuck Can reforming machine 1 H.P. motor operated with, 300, and 401. Can flanging machine, 1 H.P. motor operated with 300, 401. Flange Rectifier machine hand operated, both for 300 and 401 can with dies, base, handle Can pressure gauge both for 300 and 401 can. Can Vacuum gauge both for 300 and 401 can Can cutter / opener both for 300 and 401 can.	

Module 12*:* Prepare fruits/vegetables pickles with oil/salt/vinegar/spices, determine acidity content.

*Mapped to AGR/0230/OC12,**V2.0***

Terminal Outcomes:

- Maintain perfect hygiene standard
- Select fruits/vegetables
- Wash fruits/vegetables
- Prepare fruit/vegetables
- Prepare spices for pickle
- Prepare pickles with oil/salt/vinegar
- Test titrable Acidity in pickle
- Pack and store

Duration: *05:00*	**Duration**: *25:00*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**

• Pickles, chutneys and sauces, Different types of pickles, Methods of preparation curing techniques, defects and remedies. • Importance of personal Hygiene, Cleaning & Sanitary standards in Fruits and Vegetable preservation. Good Handling Processes (GHP), Traceability aspects of processed product	• Prepare different types of pickles from fruits and vegetables • Examination of processed products. Cleaning and maintenance of the equipment. Detection of benzoic acid, sulphur dioxide and KMS in fruits and vegetable products. •
Classroom Aids:	
Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Test tube ,borosilicate glass, Beaker, graduated , borosilicate glass, Pipette , graduated , borosilicate glass, borosilicate glass (with ptfe stoppered), Volumetric Flask , Porcelain basin 4 inch dia, Reagent bottle, Fruit miller, hand operated or ½ HP motor operated laboratory model, Screw type juice extractor, made 304SS laboratory model, hand operated or ½ HP motor operated. Mixer grinder,600watt, pH paper, E Merck,1.00-14.00, 10 bks, Litmus paper, red& blue,Emerck,Ordinary Filter paper, 125mm dia. Tissue paper roll, Refrigerator with stabilizer , 240lit, Blanching Unit (SS made) with steam charging, . Lab model, totally made of AISI Stainless Steel 304 Quality of 20gauge, Perforated SS tray and SS Busket, digital temp controller. Electrically operated, SS, capacity 30 cans at a time. Fruit pulper, laboratory model. Contacts parts are made of 304SS, With 1/32 sieve, ½ HP motor operated, with nylon brush. Jug SS, Plastic jar of different size, Glass jar with plastic cap for fruit juice, sauce etc. 250ml and 500ml. Stainless steel knives, 12-15 cm blade Stainless steel pots of different capacities.	

Module 13: Work in real job situation with special emphasis on basic safety and hazards in this domain

Mapped to AGR/0230/OC13,V2.0

Terminal Outcomes:

Assessor will check report prepared for this component of training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for 150 Hours.)

Duration:*00:00*	**Duration**: *150:00*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**

	• Assessor will check report prepared for this component of training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for 150 Hours.)
Classroom Aids:	
Tools, Equipment and Other Requirements	

Module14: Employability skills

Mapped to DGT/VSQ/N0102, v 1.0

Terminal Outcomes:

1. Demonstrate a comprehensive knowledge of constitutional values and apply them in their actions, decisions, and interactions, thereby upholding the principles of the constitution.
2. Develop proficiency in basic English skills, including reading, writing, listening, and speaking, enabling effective communication in everyday situations.
3. Exhibit proficiency in basic communication skills, including active listening, effective verbal and nonverbal communication, and clarity in expressing ideas, fostering successful interpersonal interactions.
4. Explain financial and legal literacy, including understanding key financial concepts, making informed financial decisions, and navigating legal frameworks related to personal and business finances.
5. Interpret digital tools and technologies, navigating online platforms, and practicing safe and responsible digital behavior.

• Discuss the importance of Employability Skills in meeting the job requirements. Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen. Discuss 21st century skills such as Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life. • Use basic English for everyday conversation in different contexts, in person and over the telephone. Read and understand routine information, notes, instructions, mails, letters etc. written in English. Write short messages, notes, letters, e-mails etc. in English. • Demonstrate how to communicate in a well -mannered way with others. Apply verbal and non-verbal communication etiquette and active listening techniques in various settings. Demonstrate working with others in a team • Show how to conduct oneself appropriately with all genders and PwD. • Select financial institutions, products and services as per requirement. Carry out offline and online financial transactions, safely and securely. identify common components of salary and compute income, expenses, taxes, investments etc.	

- Show how to operate digital devices and use the associated applications and features, safely and securely. Use e-mail and social media platforms and virtual collaboration tools to work effectively. Use the features of word processor, spreadsheets and presentations. Create a biodata.
- Identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research. Identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity
- Identify different types of customers. Identify and respond to customer requests and needs in a professional manner

Classroom Aids:

Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook

Details Syllabus Content

Detail of Theory Syllabus:

SL NO	CONTENT	DETAILS
1	Introduction	Definition and scope of preservation. Different types of spoilages in fresh fruits and vegetables. General principles and methods of food preservation.
2	Definition of Fruits and vegetables,	Difference in between fruits and vegetable,
3	Selection of raw materials including fruits and vegetables	Selection of raw materials including fruits and vegetables for Preparation of various products. Spices and other constituents, their properties, condiments and other additives and ingredients, and their flavouring and preservative properties.
4	Study of various equipment	Study of various equipment usage, care/maintenance and precautions.
5	Storage of fresh fruits and vegetable.	Storage of fresh fruits and vegetable. Methods and containers used in fresh fruits and vegetable preservation
6	Technology of extraction of juices from different types of fruits.	Technology of extraction of juices from different types of fruits. Definition of Preservatives-types of preservatives commonly used in food industry limits of usage of preservatives
7	Fruit beverages: Squashes, syrups, nectars, RTS, crushes, cordial etc.	Fruit beverages: Squashes, syrups, nectars, RTS, crushes, cordial etc.
8	Tomato products:	Tomato products: Technology of manufacture of tomato products.

9	Sun drying & dehydration	Sun drying & dehydration and its merits and demerits. Principles involved preservation by drying method. Treatment prior to drying.
10	Jams, Jellies and marmalades preparation, .	Jams, Jellies and marmalades: selection, preparation, production and preservation. Difference in between jam and jelly.
11	Definition of preserves, candied fruits, glazed fruits, crystallized fruits-	Definition of preserves, candied fruits, glazed fruits, Crystallized fruits- methods of preparation of these.
12	Canning and bottling-	Canning of fruits and Vegetables- principles, procedure and steps involved- care in handling of common available fruits and vegetables in the region.
13	Study of Frozen Fruits and Vegetables, Blanching and Freezing.	Study of Frozen Fruits and Vegetables, Blanching and Freezing.
14	Pickles, chutneys and sauces,	Pickles, chutneys and sauces, Different types of pickles, Methods of preparation curing techniques, defects and remedies.
15	Study of Food safety Standards:	HACCP, ISO 22000, GMP, and FSSAI. Importance of personal Hygiene, Cleaning & Sanitary standards in Fruits and Vegetable preservation. Good Handling Processes (GHP), Traceability aspects of processed product.
16	Study of various types of containers like Glass, Tin materials.	Study of various types of containers like Glass, Tin merits and demerits of each-scope for new types of containers/ packaging materials, such as plastic pouches, tetra pack, PET bottle and cartons. Understanding the label its importance, and labelling requirements

Detail of Practical Syllabus:

SL NO	CONTENT	DETAILS
1	Spoilage of fruits and vegetables	Identify the Spoilage of fruits and vegetables
2	Identifications of Fruits and vegetables.	Identifications of Fruits and vegetables.
3	Identification of spices and food additives	Identification of spices and food additives used in fruits and vegetable processing.

4	Study of common food processing equipment	Study of common food processing equipment such as pulper, sealers, juice extracting machines, autoclaves, corking machines etc.
5	Refrigeration and other methods for storing perishables	Refrigeration and other methods for storing perishables
6	Preparation of Fruit Juice.	Preparation of Fruit Juice. Preservation of fruits juices with addition of preservative.
7	Preparation of common fruit beverages.	Preparation of common fruit beverages. Determination of Acids in fruits and vegetable products
8	Preparation of tomato product	Preparation of tomato juices, puree, sauces, ketchups, soup, paste, chutney etc.
9	Various methods of drying:	Various methods of drying: sun drying, cabinet drying and solar drying.
10	Preparation of Jam, jelly and marmalades	Preparation of Jam, jelly and marmalades
11	Preparation of preserves, candies, crystallized and glazed and fruit bars.	Preparation of preserves, candies, crystallized and glazed and fruit bars.
12	Demonstration of Canning process in fruits and vegetables	Demonstration of Canning process in fruits and vegetables canning industry. Identification of effective cans, Precautions while consuming the canned foods.
13	Freezing	Freezing demonstration on market sample of frozen fruits and vegetables
14	Preparations of different types of pickles from fruits and vegetables	Preparations of different types of pickles from fruits and vegetables
15	Examination of processed products. Cleaning and maintenance of the equipment.	Examination of processed products. Cleaning and maintenance of the equipment. Detection of benzoic acid, sulphur dioxide and KMS in fruits and vegetable products.
16	Practical demonstration of sealing pouching machine.	Practical demonstration of sealing pouching machine. Examination of the tetra pack

Syllabus of Employability Skill:

Introduction to Employability Skills Duration: 1.5 Hours

After completing this programme, participants will be able to:

1. Discuss the Employability Skills required for jobs in various industries
2. List different learning and employability related GOI and private portals and their usage

Constitutional values - Citizenship Duration: 1.5 Hours

3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that arerequired to become a responsible citizen
4. Show how to practice different environmentally sustainable practices.

Becoming a Professional in the 21st Century Duration: 2.5 Hours

5. Discuss importance of relevant 21st century skills.
6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptivethinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
7. Describe the benefits of continuous learning.

Basic English Skills Duration: 10 Hours

8. Show how to use basic English sentences for everyday conversation in different contexts, in person andover the telephone
9. Read and interpret text written in basic English
10. Write a short note/paragraph / letter/e -mail using basic English

Career Development & Goal Setting Duration: 2 Hours

11. Create a career development plan with well-defined short- and long-term goals

Communication Skills Duration: 5 Hours

12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
13. Explain the importance of active listening for effective communication
14. Discuss the significance of working collaboratively with others in a team

Diversity & Inclusion Duration: 2.5 Hours

15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
16. Discuss the significance of escalating sexual harassment issues as per POSH act.

Financial and Legal Literacy Duration:5 Hours

17. Outline the importance of selecting the right financial institution, product, and service
18. Demonstrate how to carry out offline and online financial transactions, safely and securely
19. List the common components of salary and compute income, expenditure, taxes, investments etc.
20. Discuss the legal rights, laws, and aids

Essential Digital Skills Duration: 10 Hours

21. Describe the role of digital technology in today's life

22. Demonstrate how to operate digital devices and use the associated applications and features, safely andsecurely
23. Discuss the significance of displaying responsible online behavior while browsing, using various socialmedia platforms, e-mails, etc., safely and securely
24. Create sample word documents, excel sheets and presentations using basic features
25. utilize virtual collaboration tools to work effectively

Entrepreneurship Duration: 7 Hours

26. Explain the types of entrepreneurship and enterprises
27. Discuss how to identify opportunities for potential business, sources of funding and associated financialand legal risks with its mitigation plan
28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per Create a sample business plan, for the selected business opportunity

Customer ServiceDuration: 5 Hours

29. Describe the significance of analyzing different types and needs of customers
30. Explain the significance of identifying customer needs and responding to them in a professional manner.
31. Discuss the significance of maintaining hygiene and dressing appropriately

Getting Ready for apprenticeship & Jobs Duration: 8 Hours

32. Create a professional Curriculum Vitae (CV)
33. Use various offline and online job search sources such as employment exchanges, recruitment agencies,and job portals respectively
34. Discuss the significance of maintaining hygiene and confidence during an interview
35. Perform a mock interview
36. List the steps for searching and registering for apprenticeship opportunities

Tools and Equipment List for a batch of 30 students		
TABLE-A		
Sl No.	**Item description/technical specification (Glassware and accessory)**	**Qty (Nos)**
A1	Test tube ,borosilicate glass 18x15 ml 15x15 ml	50 50
A2	Beaker, graduated , borosilicate glass 1000ml 500 ml 250 ml 100ml	 5 10 10 10
A3	Conical flask, graduated, borosilicate glass 1000ml 500 ml 250 ml 100ml	 5 10 10 10
A4	Pipette , graduated , borosilicate glass 50 ml 25 ml 10 ml 5 ml 2ml 1 ml	 6 6 6 6 6 6

A5	Burette 50ml , graduated , borosilicate glass (with ptfe stoppered),	8
A6	Volumetric Flask , borosilicate glass 1000ml 500 ml 250ml 100ml	 6 6 10 10
A7	Measuring cylinder, graduated, borosilicate glass 1000ml 500 ml 250 ml 100ml 50 ml 25 ml 10ml	 5 5 5 5 5 5 5
A8	Funnel 60 deg angle long stem , borosilicate glass 75mm	 10
A9	Glass rod 6 inch long, 5-6 mm dia borosilicate glass	10
A10	Porcelain basin 4 inch dia	10
A11	Reagent bottle, borosilicate glass 250ml 500ml	 10 10
A12	Beaker, (Plastic)graduated , 1000ml 500 ml 250 ml 100ml	 10 10 10 10

A13	Pasteur pipette glass made with rubber head used for pickup of acid	12
TABLE-B		
Sl No.	**Item description/technical specification (Instruments and equipment)**	**Qty (Nos)**
B1	Hot air oven (18''x18''x18'')inch or (24''×24''×24'') with blower digital temp(Multispan) and time control, inside made of 304SS of 20gage, outside of MS with powder coated finish, ball catcher heavy door.	1
B2	Autoclave (14x18 inch) double coil, double wall, digital temperature controller, timer arrangement vertical with control cut off pressure (15-30psi) temperature indicator, inner and outer wall 304SS of 14 gage, heavy lid of 304SS 12mm thickness, 20gage 304SS perforated container with handle. Autoclave have central out let at the bottom and also have water level indicator.	1
B3	Rectangular hot plate of, (12''×16''×9'') 304SS top of 20 gauge/fully SS body of 20 gauge, digital temperature indicator cum controller.	1
B4	Digital pH meter, bench top with probe, Measuring Range : 0.00 ..... 14.00 pH - Resolution : 0.01 pH - Error Limits : ± 0.01 pH	2
B5	Micro Controller Based Colori Meter, , wave length 400nm to 700 nm selected by filters mounted on a turret, light source- 6.3V, 6W, Detector- Photo-Cell, mode- absorbance, concentration, display 16*2 digit LCD,Accessory test tube- 4nos, Black rod-1nos.	1
B6	Digital electronics balance, capacity : 5mg-210gm, accuracy 0.001gm	1
B7	Physical rough balance Capacity=30Kg Readability=1gm SS Pan size (mm) = 250×330	2
B8	Magnetic Starrer, 2Lt stirring capacity (Deluxe models with speed indicator), with Hot Plate, with Step less Speed control &S.S. body and top. Max. Speed: 1800 RPM.	1
B9	Refrigerator with stabilizer , 240lit,	1

B10	Potable temperature indicator Temp range- 0°C to 100.00◦C, resolution=0.1°C	3
B11	Muffle furnace, size of inner chamber (5''x 5''x 10'') inch, for 1000˚C working, outer casing made of heavy duty M.S. materials and sheet duly painted finished, heating elements are better quality. For 1000˚C working 3.0KW.	1
B12	Serological water bath, Double wall insulation, total 304SS of 20gage (inner and outer), capacity (12x250ml) (16''×12''×10'') 304SS lid, Ambient to 110 °C and digital temperature indicator. one outlet with ball valve	1
B13	Hand Refractometer, with three range 0-32%.29-62%, 0-95% brix	3
	TABLE-C	
Sl No.	**Item description/technical specification (Miscellaneous Item)**	**Qty (Nos)**
C1	Spoon Spatula non-magnetic stainless steel with high polish one side spoon 4'' long ,SS 6'' long, SS 8" long ,SS	 5 5 5
C2	Crucible tongs non-magnetic stainless steel with high polish 6'' long 8" long 10'' long	 3 3 3
C3	Spirit lamp SS with brass cover125ml	10
C4	Wire gauge with asbestos	10
C5	Porcelain basins, R.B with spout glazed, Dia 60mm 75mm 85mm	 6 6 6
C6	Desiccators Dia , plastic made 140mm 187mm	 1 1
C7	Mortar & pestle, Dia 110mm 130mm	 2 2

C8	Silica Crucible without lid 50ml	6
C9	Test tube holder (heavy)	10
C10	Rubber Gloves 14 no, pair	10
C11	Tripod Stand, iron made properly paint polish	10
C12	Burette stand with double clamp, (plastic)	8
C13	Pipette stand (plastic) (Vertical)	8
C14	Test tube stand (plastic) ,	10
C15	Wash bottle, (plastic), 500 ml, cap, pack of six	10
C16	Handy pipette aid (pipette sacker) 10ml and 25ml (plastic)	6 6
C17	Pressure cooker,5lit capacity	2
C18	pH paper, E Merck,1.00-14.00, 10 bks	10
C19	Litmus paper, red& blue,Emerck,10 bks	10
C20	Ordinary Filter paper, 125mm dia	10
C21	Tissue paper roll	10
C22	Grouch crucible 50ml with rubber gasket	6
C23	carboy funnel Material :PP , 50mm	6
TABLE –D		
Sl No.	**Item description/technical specification (Food processing machineries)**	**Qty (Nos)**
D1	Tray dryer, horizontal cross air flow system, inner 304SS wall of 20gauge & with six 304SS tray of 18gauge Tray size : (16''x32''x1'')inch Solid SS tray/perforated SS tray / wire net SS try, all trays adjustable type with gape of 6'' per tray.	1

	Digital PID type temperature controller. Temperature range 50˚-300˚C with accuracy ±1˚C 1HP. Crompton brand motor with fittings of 304SS made blower.	
D3	Can seaming machine,1 ADS 1 H.P. motor operated with 300, 401 seaming roller& seaming chuck	1
D4	Can reforming machine 1 H.P. motor operated with ,300, 401	1
D5	Can flanging machine,1 H.P. motor operated with 300, 401	1
D6	Flange Rectifier machine hand operated, both for 300 and 401 can with dies, base, handle	1
D7	Can pressure gauge both for 300 and 401 can	2
D8	Can Vacuum gauge both for 300 and 401 can	2
D9	Can cutter / opener both for 300 and 401 can	2
D10	Potato peeler, abrasion method, laboratory model, hand operated or ½ HP motor operated, totally made of AISI Stainless Steel 304 Quality of 20gauge	1
D11	Mixer grinder,600watt	2
D12	Potato Slicer, hand operated laboratory model With thickness adjustment system, totally made of AISI Stainless Steel 304 Quality of 20gauge	1
D13	Vegetable Slicer, ½ HP motor operated laboratory model With thickness adjustment system, totally made of AISI Stainless Steel 304 Quality of 20gauge	1
D14	Electric Heater, 1500W,coil type (nicrome wire),ceramic body	1
D15	Blanching Unit (SS made) with steam charging, lab model, totally made of AISI Stainless Steel 304 Quality of 20gauge, Perforated SS tray and SS Busket, digital temp controller. Electrically operated ,SS, capacity 30 cans at a time	1
D16	Fruit pulper, laboratory model Contacts parts are made of 304SS, With 1/32 sieve, ½ HP motor operated, with nylon brush	1
D17	Fruit miller, hand operated or ½ HP motor operated laboratory model Contacts parts are made of 304SS	1

D18	Screw type juice extractor, made 304SS laboratory model, hand operated or ½ HP motor operated,	1
D19	Crown corking machine, Baby type, hand operated magnetic cork holder	1
D20	Solar Drier of lab model	1
D21	Dekchi, 10 lits, SS Gamla, 5lit, 2 lits, SS, Ladle, kitchen std,SS Spoon (table), SS Teaspoon ,SS Plastic bucket of different size Cooking pan,5 lit Cutting knife made of high quality steel, manual Basket ,plastic Tray ,plastic Tray,SS(kitchen std) Karai, 5lit,SS Khunti ,kitchen std,SS Jug SS Plastic jar of different size Plastic pouch with zip Glass bottle with cap for fruit juice, sauce etc. 250ml and 500ml Glass jar with plastic cap for fruit juice, sauce etc. 250ml and 500ml	5 5 each 5 10 20 10 3 20 10 10 10 3 5 5 30 200 50 each 50each

	Lacquered 300 and 401 tin can with lid for canned food product Stainless steel knives, 12-15 cm blade Stainless steel pots of different capacities	200 piece each 20 10
D22	gas oven	2
D23	Commercial LPG Cylinder	3

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
CTS/ATS	Fruit and vegetable processing trade	5	In Processing of fruits and vegetables	1	In training on Processing of Fruits & Vegetables	NA
Diploma	Food processing technology	3		1		
B. Tech/BE	Food technology / Food technology and Biochemical engineering	2		1		
B.SC / M SC	Agriculture related	2		1		

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: Fruits and Vegetables Product Producer " mapped to QP: STC - AGR/NSQF-2022/0230".Minimum accepted score is 80%.	Recommended that the Trainer is certified for the Job Role: "Trainer (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2601, v2.0". Minimum accepted score is 80%

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
CTS/ATS	Fruit and vegetable processing trade	3	In Processing of fruits and vegetables	1	Similar Job Role in agriculture sector	NA
Diploma	Food processing technology	2		1		
B. Tech/BE	Food technology / Food technology and Biochemical engineering	2		1		

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: Fruits and Vegetables Product Producer" mapped to QP: STC - AGR/NSQF-2022/0230".Minimum accepted score is 80%.	Recommended that the Assessor is certified for the Job Role: "Assessor (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2701, v2.0". Minimum accepted score is 80%

Assessment Strategy

Assessment will be based on the concept of Independent Assessors empaneled with West Bengal State Council of Technical & Vocational Education & Skill Development (WBSCT&VE&SD), identified, selected, trained and certified on Assessment techniques. These Assessors would be aligned to assess as per the laid down criteria.

WBSCT&VE&SD would conduct assessment only at the training centers or designated testing centers authorized by WBSCT&VE&SD.

Ideally, the assessment will be a continuous process comprising of two distinct steps:

A. Continuous assessment by Trainers
B. Term end /Final Assessment by WBSCT&VE&SD

Each National Occupational Standard (NOS) in the respective QPs will be assigned weightage. Each Performance Criteria in the NOS will be assigned marks for theory and/or practical based on relative importance and criticality of function.

This will facilitate preparation of question bank / paper sets for each of the QPs. Each of these papers sets/question banks created by subject matter experts through WBSCT&VE&SD, especially with regard to the practical test and the defined tolerances, finish, accuracy etc.

The following tools are proposed to be used for final assessment:

i. Written Test: This will comprise of (i) True/False Statements and/or (ii) Multiple Choice Questions and/or (iii) Matching Type Questions. Online system for this will be preferred.
ii. Practical Test: This will comprise a test job to be prepared as per project briefing following appropriate working steps, using necessary tools, equipment and instruments. Through observation it will be possible to ascertain candidate's aptitude, attention to details, quality consciousness etc.
iii. Structured Viva-voce: This tool will be used to assess the conceptual understanding and the behavioral aspects as regards the job role and the specific task at hand.

Marks distribution as per outcome

Course Name	Sr No	Outcome No.	Outcome Name	Th Hrs	Pr Hrs	Total marks Th	Total marks Pr
Fruits and Vegetables Product Producer	1	AGR/0230/OC1,V2.0	Apply Safe Working Practices	10	20	14	40
	2	AGR/0230/OC2,V2.0	Identify and select fresh fruits and vegetables with the help of checklist.	10	20	14	40
	3	AGR/0230/OC3,V2.0	Identify the spoilage in fruits and vegetables and state the reason for the spoilage.	10	20	14	40
	4	AGR/0230/OC4,V2.0	Recognize the different raw materials which will be Identify as spices and food additives by visual inspection.	10	20	14	40
	5	AGR/0230/OC5,V2.0	Prepare and pack perishables for storage with safety precautions.	10	20	14	40
	6	AGR/0230/OC6,V2.0	Prepare fruit juices with juice extracting machines with safety precautions and preserve fruit juices with addition of preservatives and determine the acidity and TSS content.	5	25	6	50
	7	AGR/0230/OC7,V2.0	Prepare and package fruit beverages such as Squashes, RTS, Nectar, Cordial, Crush and Syrup by using appropriate machines such as pulper, juice extractor, autoclave, and corking machine with safety precautions, determine the acidity and TSS content	10	20	14	40
	8	AGR/0230/OC8,V2.0	Prepare and preserve Tomato products by using appropriate machines such as pulper, Autoclave, and corking machine with safety precautions, determine acidity and TSS content.	10	20	14	40
	9	AGR/0230/OC9,V2.0	Prepare, dry and storage fruits and vegetables with appropriate methods such as drying, cabinet drying and solar drying with safety precautions and determine the moisture.	10	20	14	40

	10	AGR/0230/OC10,V2.0	Prepare, preserve and store jam, jelly and marmalades by using appropriate machines such as pulper, autoclave & sealer with safety precautions, determine acidity and TSS content, pectin test.	20	40	12	80
	11	AGR/0230/OC11,V2.0	Demonstrate the Canning process of fruits and vegetables and Identify defects by physical observation & its causes in canned foods and explain food safety standards.	10	20	14	40
	12	AGR/0230/OC12,V2.0	Prepare fruits/vegetables pickles with oil/salt/vinegar/spices, determine acidity content.	5	25	6	50
	13	AGR/0230/OC13,V2.0	Work in real job situation with special emphasis on basic safety and hazards in this domain.	0	150	0	260
	14	DGT/VSQ/N0102	Employability Skills- 60 hrs.	60		50	
	TOTAL Theory 120 Hrs, Practical 270 Hrs, Employability Skill 60 Hrs, OJT-150 Hrs					200	800

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to Be known and/or understood in order to accomplish or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training Outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT(M)	On-the-job training(Mandatory);trainees are mandated to complete specified hours of training on site
OJT(R)	On-the-job training(Recommended);trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psycho motor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do **upon the completion of the training**.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do **upon the completion of a module.** A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards