

Food Processing Food Processing Technician (FPTN)

Core Qualification File Syllabus

Detail of Theory Syllabus

SL NO	CONTENT	DETAILS
1	Introduction to Training Program and Overview of Food Processing and preservation	<ul style="list-style-type: none">● Define food processing● List the various sub sectors of food processing industry● Explain different types of fruits and vegetables processing● State the need for processing and preservation of fruits and vegetables● classification of food according to nutrient content, sources and specially about moisture content● State the methods of testing fruits and vegetables for accepted quality standards● Different types of spoilages in fresh fruits and vegetables.
2	Nutritional aspect of Fruits and vegetables	<ul style="list-style-type: none">● Essential nutrients present in foods- Carbohydrate, Protein, Fats, Vitamins, Minerals (types, sources, properties, functions, estimation technique)● Nutritional value of different fruits and vegetables● Basic science for loss of nutritive value of fruits and vegetables during processing
3	General principles and methods of Fruits and vegetables preservation.	<ul style="list-style-type: none">● Storage of fresh fruits and vegetable. Methods and containers used in fresh fruits and vegetable preservation● Commercial methods food preservation (Pasteurization, Sterilization, Canning and Bottling, Drying and Dehydration, Refrigeration and Freezing, Irradiation, Smoking)● Home Scale methods food preservation (Sun drying, Pickling, Cooking ,Boiling ,Steaming, blanching ,Roasting, Fermentation, Preservation of Jam/ Jellies/Juices/Squashes/Marmalades)● Canning of fruits and vegetables-basic principles, procedure and steps● Sun drying & dehydration and its merits and demerits. Principle involved preservation by drying method. Treatment prior to drying.● Study of Frozen Fruits and Vegetables, Refrigeration and Freezing.● Definition of Preservatives-types of preservatives commonly used in food industry limits of usage of preservatives
4	Selection of raw materials including fruits and vegetables	<ul style="list-style-type: none">● Select raw materials including fruits and vegetables for Preparation of various products. Spices and other constituents, their properties, condiments and other additives and ingredients, colouring and flavouring agent.
5	Prepare and package fruit beverages such as Squashes, RTS, Nectar, Cordial, Crush and Syrup	Technology of extraction of juices from different types of fruits. Manufacturing of Fruit beverages: Squashes, syrups, nectars, RTS, crushes, cordial etc.
6	Preparation of Jam, Jelly and marmalade	<ul style="list-style-type: none">● Selection and grading of raw fruits and vegetables● washing of fruits and vegetables before they go for processing● Technology of extraction of juices from different types of fruits and vegetable.<ul style="list-style-type: none">● technique/ process of preparation of jam/ jelly/marmalade (ripe mango, green mango, pineapple, apple, guava, orange)

		<ul style="list-style-type: none"> ● the technique/ process of preparation of mixed fruits jam/ jelly (Mango, guava, strawberry, orange etc.) ● technique/ process of preparation of sauce/ ketchup (tomato, chili) • Product packaging and analysis the quality of the finished product • cleaning of machineries used with recommended sanitizers following CIP (clean-in-place) procedure • cleaning of equipment and tools used with recommended cleaning agents and sanitizers
7	Preparation of tomato juice/ tomato puree/tomato paste/ tomato sauce/tomato ketchup/tomato chutney/tomato soup	<ul style="list-style-type: none"> ● Manufacturing process of tomato juice/ tomato puree/tomato paste/ tomato sauce/tomato ketchup/tomato chutney/tomato soup. ● Preservation of tomato juice/ tomato puree/tomato paste/ tomato sauce/tomato ketchup/tomato chutney/tomato soup. • Analysis of TSS and acidity of tomato products.
8	Pickle Making	<p>Selection and grading of raw fruits and vegetables</p> <ul style="list-style-type: none"> • washing of fruits and vegetables before they go for processing • peeling and slicing of fruits and vegetables • preparation of brine solution • curing of fruits and vegetable. <ul style="list-style-type: none"> ● technique/ process of preparation of salty and oily pickle (green mango, green chili, lemon, ginger, mixed type,) ● technique/ process of preparation of sweet pickle (Mango, plum, papaya, date, mango lather, mixed type etc.) <ul style="list-style-type: none"> ● Product packaging and analysis of quality of the finished product • cleaning the machineries used with recommended sanitizers following CIP (clean-in-place) procedure • cleaning the equipment and tools used with recommended cleaning agents and sanitizers
9	Study of various types of containers like Glass, Tin materials, plastic pouch.	<p>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, plastic bottle and cartons.</p> <p>Understanding the label its importance, and labelling requirements</p>
10	Food Safety, Hygiene and Sanitation for Packaging Food	<ul style="list-style-type: none"> ● importance of safety, hygiene and sanitation in the Jam, Jelly, Ketchup and pickle making industry • industry standards to maintain a safe and hygiene workplace • HACCP principles to eliminate food safety hazards in the process and products 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. <ul style="list-style-type: none"> • safety practices in the work area

Detail of Practical Syllabus

SL NO	CONTENT	DETAILS
1	Spoilage of fruits and vegetables	Identifications of different types of Spoilage occur in fruits and vegetables
2	Canning of fruits and vegetables	Canning of peas, tomato, carrot, pineapple, mango, potato
3	Drying of fruits and vegetables	Drying of potato, carrots, peas, cabbage in tray dryer and solar dryer
4	Study and handling of common food processing equipment.	Study of common food processing equipment such as pulper, sealers, juice extracting machines, autoclaves, steam jacketed kettle, pickle mixer etc.
5	Preparation of tomato products	Preparation of tomato juices, puree, sauces, ketchup
6	Preparation of Jam, jelly and marmalades	<ul style="list-style-type: none">● preparation of jam/ jelly/marmalade (ripe mango, green mango, pineapple, apple, guava, orange)● preparation of mixed fruits jam/ jelly (Mango, guava. strawberry, orange etc.)
7	Preparations of different types of pickles from fruits and vegetables	<ul style="list-style-type: none">● preparation of salty and oily pickle (green mango, green chili, lemon, ginger, mixed type,))● preparation of sweet pickle (Mango, plum, papaya, date, mango lather, mixed type etc.)
8	Examination of processed products. Cleaning and maintenance of the equipments.	Examination of processed products. Cleaning and maintenance of the equipments. Detection of benzoic acid, sulphur dioxide and KMS in fruits and vegetable products.
9	Analysis of the raw material and finished product	Pectin grade, Acidity of fruit juice and pickle, Total Solid content, Brix measurement, Moisture content, Ash content, reducing and non reducing sugar content. Study on the shelf life of the finished product.
10	Packaging and Labeling	Study of containers like Glass, Tin, packaging materials, such as plastic pouches, plastic bottle and cartons. information to be mentioned on label and pack.

OUTCOMES

Outcomes to be assessed/NOS to be assessed	Assessment criteria for the outcome
1. Illustrate different types food spoilage	<p>Trainees will be able to</p> <ul style="list-style-type: none"> ● Classify food according to nutrient content, sources and especially about moisture content (perishable, semi perishable, non-perishable). ● Explain the need to protect food quality from food spoilage by minimizing the nutrient loss. ● Identify different types of food spoilage like microbial spoilage, spoilage by enzymes, spoilage by insects /rodents, spoilage by mechanical damage/mishandling.
2. Demonstrate different methods of food preservation and applicability of methods on different food.	<p>Trainees will be able to</p> <ul style="list-style-type: none"> ● Demonstrate Commercial methods of food preservation (Pasteurization, Sterilization, Canning and Bottling, Drying and Dehydration, Refrigeration and Freezing, Irradiation, Smoking) ● Demonstrate Home Scale methods food preservation (Sun drying, Pickling, Cooking ,Boiling ,Steaming, blanching ,Roasting, Fermentation, Preservation of Jam/ Jellies/Juices/Squashes/Marmalades) ● Explain Canning process of fruits and vegetables and Identify defects by physical observation & its causes in canned foods ● Prepare, dry and store fruits and vegetables with appropriate methods such as drying, cabinet drying and spray drying with safety precautions and determine the moisture. ● Prepare and pack perishables for storage and then store under refrigerated conditions with safety precautions.
3. Identify different food additives used for food preservation.	<p>Trainees will be able to</p> <ul style="list-style-type: none"> ● identify different food additives like preservatives, colures, flavours, antioxidants, sweeteners, flour improvers emulsifiers ,stabilizers
4. Prepare and preserve fruit juices maintaining quality.	<p>Trainees will be able to</p> <ul style="list-style-type: none"> ● Maintain the perfect hygiene standard ● Select perfect fruits ● Prepare fruits juice with juice extracting machine ● Measure juice ● Determine TSS and acidity ● Fill the preserved fruit juices in sterilized bottles, ● Cork and crown the bottles

5. Prepare and package fruit beverages using appropriate machines with safety precautions and maintaining quality	<p>Trainees will be able to</p> <ul style="list-style-type: none"> • Maintain perfect hygiene standard • 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 • Demonstrate use of machines like pulper, juice extractor, autoclave, and corking machine with safety precautions.
6. Prepare, preserve and store Tomato products maintaining quality	<p>Trainees will be able to</p> <ul style="list-style-type: none"> • 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 • Demonstrate use of machines like pulper, steam jacketed kettle, and corking machine
7. Prepare, preserve and store jam, jelly and marmalades by using appropriate machines maintaining quality	<p>Trainees will be able to</p> <ul style="list-style-type: none"> • 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. • Demonstrate use of machines such as pulper, steam jacketed kettle & sealer
8. Prepare fruits/vegetables pickles with oil/salt/vinegar/spices, maintaining quality	<p>Trainees will be able to</p> <ul style="list-style-type: none"> • 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
9. Identify various types of packaging materials like Glass, Tin materials, plastic pouch with labeling requirement	<p>Trainees will be able to</p> <ul style="list-style-type: none"> • Choose various types of containers like Glass, Tin merits and demerits of each-scope for new types of containers/ packaging materials, such as plastic pouches, plastic bottle and cartons. • Explain the label and its importance, and labeling requirements

<p>10. Demonstrate knowledge of Food Safety, Hygiene and Sanitation for Packaging Food.</p>	<p>Trainees will be able to</p> <ul style="list-style-type: none"> ● State the importance of safety, hygiene and sanitation in food processing industry ● Apply the industry standards to maintain a safe and hygiene workplace ● Apply HACCP principles to eliminate food safety hazards in the process and products HACCP, ISO 22000, GMP, and FSSAI. ● Explain the importance of personal Hygiene, Cleaning & Sanitary standards in Fruits and Vegetable preservation. Good Handling Processes (GHP), ● Traceability aspects of processed product. ● Apply safety practices in the work area
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