

| Course: Multi-Skill Technician (Food Processing and Preservation)- FPP | | | | | |
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| Job Role Covered - Pickle Making technician, Jam/Jelly/ Ketchup processing technician, Squash and Juice Processing Technician, Craft Baker, Fruits & Vegetables canning technician, Fruits and Vegetable Selection Incharge, Fruit Pulp Processing Technician, Fruits & vegetables drying & dehydration technician | | | | | |
| NSQF Multi-Skill Technician - Level 3 - Class 11th - Curriculum | | | | | |
| semester - 1 | | | | | |
| Sr.No. | Unit Code | Unit Title | Qualification Pack | NOS | |
| 1 | L3- MST- FPP- 1 | Introduction to food processing techniques | FIC / Q0108 Fruits and Vegetables Selection Incharge | 1. FIC/N0128 Prepare and maintain work area and process machineries for the sorting and grading 2. FIC/N0129 Sort and grade produce 3. FIC/N0130 Complete documentation and record keeping related to the sorting and grading 4. FIC/N9001 Food safety, hygiene and sanitation for processing food products | |
| 2 | L3- MST- FPP- 2 | Preparation of Canned vegetable and fruit products | FIC / Q0107 Fruits and Vegetables Canning Technician | FIC/N0126 Can fruits and vegetables | |
| 3 | L3- MST- FPP- 3 | Preparation of Fruit Pulp | FIC/Q0106 Fruit Pulp Processing Technician | FIC/N0122 Produce fruit pulp from various fruits | |
| 4 | L3- MST- FPP- 4 | Preparation of Juice | FIC / Q0101 Squash and Juice Processing Technician (Focus on Juice) | FIC/N0103 Produce squash and juice (Focus on Juice) | |
| semester - 2 | | | | | |
| 5 | L3- MST- FPP- 5 | Preparation of Squashes | FIC / Q0101 Squash and Juice Processing Technician (Focus on Squashes) | FIC/N0103 Produce squash and juice (Focus on Squashes) | |
| 6 | L3- MST- FPP- 6 | Preparation of Jam & Jelly | FIC/Q0103 Jam, Jelly, Ketchup Processing Technician (Focus on Jam & Jelly) | FIC/N0111 Produce jam, jelly and ketchup (Focus on Jam & Jelly) | |
| 7 | L3- MST- FPP- 7 | Preparation of Ketchup | FIC/Q0103 Jam, Jelly, Ketchup Processing Technician (Focus on Ketchup) | FIC/N0111 Produce jam, jelly and ketchup (Focus on Ketchup) | |
| 8 | L4- MST- FPP- 8 | Entrepreneurship Development | (Curriculum as prescribed by NSDC for the PMKVY scheme) | (Curriculum as prescribed by NSDC for the PMKVY scheme) | |
| Apprenticeship - 4 weeks | | | | | |

NSQF Multi-Skill Technician- Level - 4 - Class 12th - Curriculum

Semester - 3

| Sr.No. | Unit Code | Unit Title | Qualification Pack | NOS |
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| 1 | L4- MST- FPP- 1 | Preparation of dried fruits and vegetable products | FIC/Q0105 Fruits and Vegetables Drying /Dehydration Technician | FIC/N0118 Dry/ Dehydrate fruits and vegetables |
| 2 | L4- MST- FPP- 2 | Prepare Spice Products | FIC/Q8502 Spice Processing Technician | FIC/N8509 Produce spice products |
| 3 | L4- MST- FPP- 3 | Preparation of pickle | FIC / Q0102 Pickle Making Technician | FIC/N0107 Pickle making |

Semester - 4

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| 4 | L4- MST- FPP- 4 | Prepare Baked products | FIC/Q5002 Craft Baker | FIC/N5007 Produce baked products in artisan bakeries and patisseries |
| 5 | L4- MST- FPP- 5 | Entrepreneurship Development | (Curriculum as prescribed by NSDC for the PMKVY scheme) | (Curriculum as prescribed by NSDC for the PMKVY scheme) |
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NSQF Multi-Skill Technician - Level 3 - Class 11th - Curriculum

| Unit Code | Unit Title | Learning Outcome | Knowledge Evaluation | Performance Evaluations | Learning Methodologies |
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| L3-MST-FPP- 1 | Introduction to food processing techniques | Demonstrate the knowledge of food processing | Describe the different types of food processing- - Describe the features of food processing- - Describe the design and layout of different types of food processing- | Identify the various components of food processing Deciding appropriate time for food processing (cost of fruits / quality etc.) | Interactive lecture on examples of food processing in the life of the student and their types and features |
| | Equipment used in food processing | Demonstrate the knowledge of use and maintenance of equipment | Describe the uses of various equipments used in food processing - weighing scales, cutting instruments, stainless steel knives, plastic bowls, Jelly bags, mesh strainer and sieves, pH meter/pH paper, boiling pan, measuring spoons, measuring glasses, wooden spoons, wooden spatula, jars and lids, jar filler and capper, labels, refractometers, candy thermometer, jelly thermometer, polimeter, can sealer, plastic sealer, pulper finisher, juicer, plastic protect cap sealer, chiller, stove, burner, vacuum pack sealer, pulveriser, mixer, grinders, etc. | Demonstrate the use of various equipment - Demonstrate the cleaning, sanitization, storage and maintenance of equipment | Interactive lecture on uses and maintenance of various equipment - Practical demonstration of the tools and their maintenance |
| | Selection of Fruits | Demonstrate the knowledge of selecting fruits as per the standards | Describe the parameters/selection criteria to be consider while selecting the fruits for - Jam, Jelly, Marmalade, Canned fruits, Sweet, etc. | Select fruits as per standards/selection criteria | Interactive lecture on parameters for fruit selection - Visit to fruit market to understand different fruits available as per the season and special features of fruits variety. |
| | Selection of Vegetables | Demonstrate the knowledge of vegetables as per the standards | Describe the parameters/selection criteria (colour, shape, size, stage of ripening, texture) to be consider while selecting the fruits for - pickles, frozen vegetables, Dehydrated vegetable products | Select vegetables as per standards/selection criteria (colour, shape, size, stage of ripening, texture) | Interactive lecture on parameters for vegetable selection - Visit to vegetable market to understand different vegetables available as per the season and special varieties of vegetables |
| | Storage of Fruits | Demonstrate the knowledge of procedure of storing fruits as per the standards | Describe the temperature, humidity, time of storing fruits | Store fruits as per the FSSAI | Interactive lecture on storing fruits |
| | Storage of Vegetables | Demonstrate the knowledge of procedure of storing vegetables as per the standards | Describe the temperature, humidity, time of storing vegetables | Store vegetables as per FSSAI | Interactive lecture on storing vegetables |
| | Maintaining Documentation | Demonstrate the knowledge of documentation of appropriate process | Describe the importance of maintaining documentation - Describe the various stages for maintaining documentation | Document and maintain records of raw materials - Document and maintain records of production and process parameters - Document and maintain records of finished products | Explain importance of documentation, demonstrate various forms and help students fill out the forms |

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| L3-MST-FPP- 2 | Preparation of Canned vegetable and fruit products | Demonstrate the knowledge of different types of Canned vegetable and fruit products | Describe the method used for canning of vegetable and fruit products - Describe the techniques (use of sugar syrup/brine) used for making of canned methods | Wash, sort and cut vegetables and fruits - Blanching of fruit and vegetables - Preparation of sugar syrup/brine - Mixing of vegetable/fruit pieces and sugar syrup/brine - Filling of cans - Sealing of cans - Pasteurization of cans | Interactive lecture on canning methods. Practicals to be done in combination with jam, jelly, ketchup preparations. |
| | Preparation of Cans | Prepare clean and sterile Cans | Describe the procedures for cleaning and sterilization of Cans | Perform the cleaning and sterilization process for Cans | Practical on sterilization of cans |
| | Filling and Packaging of canned vegetables and fruit products | Fill and pack canned vegetables and fruit products as per the standard | Describe the procedures for filling the canned vegetables and fruit products | Perform filling of canned vegetables and fruit products - Label cans | Practical on packing and labeling cans |
| | Storage | Store the filled cans as per the requirements | Describe the temperature and humidity at which cans should be stored | Store the filled cans | |
| L3-MST-FPP- 3 | Preparation of Fruit Pulp | Demonstrate the knowledge of fruit pulp production | Describe the methods for - Receive and ripen fruits - Wash and sort fruits - Peel, de-seed/ de-stone fruits - Pulp fruit and pre-cook pulp - Carry out aseptic sterilization and packing of fruit pulp - Can fruit pulp - Carry out post production cleaning and regular maintenance of equipments | - Receive and ripen fruits - Wash and sort fruits - Peel, de-seed/ de-stone fruits - Pulp fruit and pre-cook pulp - Carry out aseptic sterilization and packing of fruit pulp - Can fruit pulp - Carry out post production cleaning and regular maintenance of equipments | Interactive lecture and practical on fruit pulp production |
| L3-MST-FPP- 4 | Preparation of Juice | Demonstrate the knowledge of different types of juices | Describe the methods used for making juices - components in making of juice - Describe the techniques used for making of juice - Describe the various food colours and preservatives used for making juice | Wash, sort and cut fruits - Extract fruit juice - Preparation of sugar syrup - Mixing of fruit juice and sugar syrup - Addition of colour, flavour and preservatives | Interactive lecture and practical on juice production |
| | Preparation of Bottles and Lids | Prepare clean and sterile bottles and lids - Prepare Bottles and Lids | Describe the procedures for cleaning and sterilization of bottles and lids | Perform the cleaning and sterilization process for bottles and lids | Practical on sterilization of cans |
| | Filling and Packaging of juice | Fill and pack as per the requirement | Describe the procedures for filling the juice | Perform filling of juice leaving head space in the bottles - Label bottles | Practical on packing and labeling cans |
| | Storage | Store the filled bottles as per the requirements | Describe the temperature and humidity at which bottles should be stored - Describe the meaning of shelf life | Store the bottles | Interactive lecture on storage |
| L3-MST-FPP- 5 | Preparation of squash | Demonstrate the knowledge of different types of squash | Describe the methods used for making squashes - components in making of squash - Describe the techniques used for making of squash - Describe the various food colours and preservatives used for making squash | Wash, sort and cut fruits - Extract fruit squash - Preparation of sugar syrup - Addition of colour, flavour and preservatives | Interactive lecture and practical on squash production |
| | Preparation of Bottles and Lids | Prepare clean and sterile bottles and lids - Prepare Bottles and Lids | Describe the procedures for cleaning and sterilization of bottles and lids | Perform the cleaning and sterilization process for bottles and lids | Practical on sterilization of cans |
| | Filling and Packaging of squash | Fill and pack as per the requirement | Describe the procedures for filling the juice | Perform filling of juice leaving head space in the bottles - Label bottles | Practical on packing and labeling cans |
| | Storage | Store the filled bottles as per the requirements | Describe the temperature and humidity at which bottles should be stored - Describe the meaning of shelf life | Store the bottles | Interactive lecture on storage |

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| L3-MST-FPP- 6 | Preparation of Jam & Jelly | Demonstrate the knowledge of preparing Jam and Jelly | Describe the components in making of Jam & Jelly <ul style="list-style-type: none"> - Differentiate between Jam & Jelly - Describe the techniques (use of high temperature, preservatives) used for making of Jam & Jelly - Calculate the amount of pectin - Describe the various food colours and preservatives used for making Jam & Jelly - Describe the end point of the Jam & Jelly | Extract Juice for jelly making and pulp for jam making <ul style="list-style-type: none"> - Boil juice and pulp as per the requirements - Determination of the end point of the Jam & Jelly using a refractometer - Determination of the end point of Jam & Jelly using a thermometer - Use of plate test to determine the end point | Interactive lecture and practical on Jam & jelly production |
| | Preparation of Bottles and Lids | Prepare clean and sterile bottles and lids | Describe the procedures for cleaning and sterilization of bottles and lids | Perform the cleaning and sterilization process for bottles and lids | Practical on sterilization of cans |
| | Filling and Packaging of Jam and Jelly | Fill and pack Jam and Jelly as per the requirement | Describe the procedures for cooling and filling the Jam & Jelly | Perform cooling and filling of Jam & Jelly <ul style="list-style-type: none"> - Label bottles | Practical on packing and labeling cans |
| | Storage | Store the filled bottles as per the requirements | Describe the temperature and humidity at which bottles should be stored <ul style="list-style-type: none"> - Describe the meaning of shelf life | Store the bottles | Interactive lecture on storage |
| L3-MST-FPP- 7 | Preparation of Ketchup | Demonstrate the knowledge of preparing ketchup | Describe the components in making of ketchup and sauces <ul style="list-style-type: none"> - Differentiate between ketchup and sauces - Describe the techniques (use of high temperature, preservatives) used for making of ketchup - Describe the various food colours and preservatives used for making ketchup - Describe the end point of the ketchup | Wash, sort and cut/chop tomatoes <ul style="list-style-type: none"> - Boil pulp as per the requirements - Extract and strain pulp for making ketchup - Add spices as per norms using spice bag - Addition of sugar, salt, vinegar/acetic acid - Determination of the end point of the ketchup and sauce - Determination of the end point of ketchup and sauce using a thermometer - Use of plate test to determine the end point | Interactive lecture and practical on ketchup production |
| | Preparation of Bottles and Lids | Prepare clean and sterile bottles and lids | Describe the procedures for cleaning and sterilization of bottles and lids | Perform the cleaning and sterilization process for bottles and lids | Practical on sterilization of cans |
| | Filling and Packaging of Ketchup | Fill and pack Ketchup as per the requirement | Describe the procedures for cooling and filling the Ketchup | Perform cooling and filling of Ketchup <ul style="list-style-type: none"> - Label bottles | Practical on packing and labeling cans |
| | Storage | Store the filled bottles as per the requirements | Describe the temperature and humidity at which bottles should be stored <ul style="list-style-type: none"> - Describe the meaning of shelf life | Store the bottles | Interactive lecture on storage |
| L3-MST-FPP- 8 | Entrepreneurship Development | (Curriculum as prescribed by NSDC for the PMKVY scheme) | | (Curriculum as prescribed by NSDC for the PMKVY scheme) | |

| Apprenticeship - 4 weeks | | | | | |
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| NSQF Multi-Skill Technician-Level - 4 Class 12th - Curriculum | | | | | |
| Unit code | Unit Title | Learning Outcome | Knowledge Evaluation | Performance Evaluation | Learning Methodologies |
| L4-MST-FPP- 1 | Preparation of dried fruits and vegetable products | Demonstrate the knowledge of dried fruits and vegetable products | Describe the method used for drying of fruits and vegetables - Describe the techniques (salting/use of sugar) used for making of dried fruits and vegetables | Wash, sort and cut vegetables and fruits - Salting / use of sugar for vegetables or fruits - Sun drying - Filling the bags | Interactive lecture and practical on dried vegetable and fruit production |
| | Preparation of plastic bags | Prepare clean and sterile plastic bags | Describe the procedures for cleaning and sterilization of plastic bag | Perform the cleaning and sterilization process for plastic bag | Practical on sterilization of bags |
| | Filling and Packaging of dried fruits and vegetables | Fill and pack dried fruits and vegetables as per the standard | Describe the procedures for filling the dried fruits and vegetables | Perform filling of fruits and vegetables - Sealing of the bags - Label the bags | Practical on packing and labeling bags |
| | Storage | Store the filled bags as per the requirements | Describe the temperature and humidity at which bags should be stored | Store the filled bags | Interactive lecture on storage |
| L4-MST-FPP- 2 | Produce Spice Products | Demonstrate knowledge about handling all types of spices to produce spice products | Describe - types and varieties of raw materials (various spices) and products obtained from each raw materials - various methods of cleaning, milling and sterilization of spices - production process, process parameters and product formulation for various products produced - types of machineries used in processing and machineries used in the organisation - handling and maintenance of all machineries, equipments and tools - quality parameters, basic food microbiology and quality assessment based on physical parameters - types and category of packaging materials, packaging machineries - storage procedures for raw materials, packaging materials and finished goods - methods for disposal of waste | Be able to - Prepare and maintain process machineries and tools for spice processing - Provide support in planning production - Organize raw material and equipments for spice processing - Receive and store raw materials - Clean spices - Produce dried and sterilized spices - Produce spice powders - Produce curry powders - Package and sterilize spice products - Document and maintain records of raw material, production and process parameters and finished products related to spice processing | Visit to a spice processor - Interactive lecture on different kinds of products, raw materials, methods and equipment - Practical exercises on calculating raw material needed according to quantity - Visit to a processing shop to estimate costs of raw material Interactive lecture and practical |

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| L4-MST-FPP- 3 | Preparation of Pickle | Demonstrate the knowledge of types of pickles and preparation of Pickles | Describe the various methods used for making pickles - fermented pickles, butter pickle, candied pickle, dill pickle, - components in making of Pickles - Describe the techniques used for making of Pickles - Describe the various food colours and preservatives used for making Pickles - Describe the end point of the Pickles | Wash, sort and cut/chop vegetables/fruits - Add spices - Addition of sugar, salt, vinegar/acetic acid, oil | Interactive lecture and practical on pickle production |
| | Preparation of Bottles, Lids and Plastic pouches | Prepare clean and sterile bottles and lids - Prepare plastic pouches | Describe the procedures for cleaning and sterilization of bottles and lids | Perform the cleaning and sterilization process for bottles and lids | Practical on sterilization of bottles, lids and pouches |
| | Filling and Packaging of pickle | Fill and pack pickles as per the requirement | Describe the procedures for filling the pickles | Perform filling of pickles - Label bottles and plastic pouches | Practical on packing and labeling bottles |
| | Storage | Store the filled bottles as per the requirements | Describe the temperature and humidity at which bottles should be stored - Describe the meaning of shelf life | Store the bottles and plastic pouches | Interactive lecture on storage |
| L4-MST-FPP- 4 | Prepare Baked products | Demonstrate knowledge about preparation for baking | Describe - Different baked products (breads, puffs, cookies, cakes/ pastries, desserts, specially baked products, etc.) - types of raw materials (including ingredients) and various baked products - methods for baking various types of baked product - types of machineries used for baking various products and machineries - basic maintenance of baking equipments - supplier/manufacturers instructions related to machineries - calculation of raw material for required quantity of finished product - quality parameters and quality assessment based on physical parameters - food safety and hygiene | - Identify different baked products (breads, puffs, cookies, cakes/ pastries, desserts, specially baked products, etc.) - calculate the raw material, packaging materials and manpower requirement - check the working and performance of equipment required - plan batch size considering full capacity utilization of equipments | Visit to a bakery - Interactive lecture on different kinds of baked products, raw materials, methods and equipment - Practical exercises on calculating raw material needed according to quantity - Visit to a shop to estimate costs of raw material |
| | | Demonstrate knowledge about baking production | Describe - Mix ingredients - Fermentation and proofing dough - Roll, shape, cut and mould using rolling pin, cookie cutter - Bake products - Design and develop specialty baked products like wedding cakes, celebration cakes - Post production cleaning and regular maintenance of equipments | Be able to - Mix ingredients - Fermentation and proofing dough - Roll, shape, cut and mould using rolling pin, cookie cutter - Bake products - Design and develop specialty baked products - Prepare icings, fondants, colours, fruits, etc. required according to the design and apply glazes, icings, or other toppings to baked goods using spatulas, brushes, piping bags, etc. - Post production cleaning and regular maintenance of equipments | Interactive lecture and practical on baking different products |
| L4-MST-FPP- 5 | Entrepreneurship Development | (Curriculum as prescribed by NSDC for the PMKVY scheme) | | (Curriculum as prescribed by NSDC for the PMKVY scheme) | |