

Syllabus

On

Food Processing & Preservation

Under Skill Development Initiative (**SDI**) Scheme

Based on

Modular Employable Skills (**MES**)

Designed in 2011

by

Directorate General of Employment & Training
Ministry of Labour & Employment
Government of India

List of members attended the Trade Committee Meeting for designing the course curricula on “Food Processing & Preservation” Sector under Skill Development Initiative Scheme (SDIS) based on Modular Employable Skills (MES) held on 29.08.2011 at C.S.T.A.R.I., Kolkata.

Sl.No.	Name and Designation	Organisation	Remarks
1.	Mr. S.J. Amalan, Director	C.S.T.A.R.I, Kolkata	Chairman
2.	Dr. I. Chakraborty, Associate Professor	Bidhan Chandra Krishi Vishabidyalay, Nadia, W-Bengal	Member
3.	Mr. S. Dalai, Addl. Milk Commissioner	Directorate of Animal Husbandry & Animal Health, Govt of W.Beng	Member
4.	Smt Susmita Mukherjee, Principle	Keertika Academy, Kolkata	Member
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6.	Mr. Gautam Sardar, Director	National Institute of Hotel Management, Kolkata	Member
7.	Smt Chaina Sharma, Faculty member	National Institute of Hotel Management, Kolkata	Member
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10.	Mr. G. Giri, Dy. Director	C.S.T.A.R.I, Kolkata	Member
11.	Mr.L.K. Mukherjee, Dy. Director	C.S.T.A.R.I, Kolkata	Member
12.	Mr. Nirmalya Nath, Asstt. Director	C.S.T.A.R.I, Kolkata	Member
13.	Mr. S.B. Sardar, Asstt. Director	C.S.T.A.R.I, Kolkata	Member
14.	Mr. P. K.Dutta, Asstt. Director	C.S.T.A.R.I, Kolkata	Member
15.	Mr. R. N. Manna, Trg. Officer	C.S.T.A.R.I, Kolkata	Member
16.	Mr. M. K. Batabal, Trg. Officer	C.S.T.A.R.I, Kolkata	Member

Course Curricula in
“Food Processing & Preservation” Sector
under SDIS based on MES.

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Skill Development based on Modular Employable Skills (MES)

Background

The need for giving emphasis on Skill Development, especially for the educated unemployed youth (both for rural & urban) has been highlighted in various forums. Unfortunately, our country's current education system does not give any emphasis on development of skills. As a result, most of the educated unemployed youths are found wanting in this area, which is becoming their Achilles heel.

As India is on the path of economic development and the share of service sector's contribution to the GDP of the country is increasing (53% of GDP) it is becoming imperative that Government of India along with other nodal agencies play an important role in providing employable skills, with special emphasis on Skills.

Hence, need of the hour is some policy change at Apex level which will address the needs of the changing economy and look at providing mandatory skills training to all educated unemployed youths, with a view to have them gainfully employed. This shift in policy will ultimately benefit all the stake holders, namely the individuals, industry, Government and the economy by way of providing employment, increasing the output/productivity and ultimately resulting in a higher GDP for the nation.

- **Frame work for skill development based on 'Modular Employable Skills (MES)'**
Very few opportunities for skill development are available for the above referred groups (educated unemployed youth). Most of the existing skill development programmes are long term in nature. Poor and less educated persons cannot afford long term training programmes due to higher entry qualifications, opportunity cost, etc. Therefore, a new framework for skill development has been evolved by the DGET to address the employability issues.

The **key features of new framework for skill development** are:

- Demand driven short term training courses based on modular employable skills are decided in consultation with Industries.
- Flexible delivery mechanism (part time, week ends, full time)
- Different levels of programmes (foundation level as well as skill up gradation) to meet demands of various target groups
- Central Government will facilitate and promote training while vocational training providers (VTPs) under the Govt. and Private Sector will provide training
- Optimum utilization of existing infrastructure to make training cost effective.
- Testing of skills of trainees by Independent Assessing Bodies (IABs) who would not be involved in conducting training programme, to ensure that it is done impartially.
- Testing & Certification of prior learning (skills of persons acquired informally)

The Short Term courses would be based on "Modular Employable Skills (MES)".

The **concept for the MES** is:

- ✓ Identification of minimum skills set, which is sufficient to get an employment in the labour market.
- ✓ It allows skills up gradation, multi skilling, multi entry and exit, vertical mobility and life long learning opportunities in a flexible manner.

- ✓ It also allows recognition of prior learning (certification of skills acquired informally) effectively.
- ✓ The modules in a sector when grouped together could lead to a qualification equivalent to National Trade Certificate or higher.
- ✓ Courses could be available from level 1 to level 4 in different vocations depending upon the need of the employer organizations.
- ✓ MES would benefit different target groups like:
 - Workers seeking certification of their skills acquired informally
 - Workers seeking skill up gradation
 - Early school drop-outs and unemployed
 - Previously child Labour and their family

INTRODUCTION

Economic growth in India is increasingly supported by robust industrial growth. Food Processing & Preservation sector is one of the relatively lesser known but significant sector that support almost all industrial & production activities. However, notwithstanding its importance and size (INR 4 trillion), it has traditionally not been accorded the attention it deserves as a separate sector in itself. The level of inefficiency in Food Processing & Preservation Sector activities in the country has been very high across all modes.

The required pace of efficiency and quality improvement will demand rapid development of capabilities of Food Processing & Preservation Sector service providers. And with Food Processing & Preservation Sector being a service oriented sector, skill development will emerge as a key capability.

This lack of focus on developing manpower and skills for the Food Processing & Preservation Sector has resulted in a significant gap in the numbers and quality of manpower in the sector.

This gap, unless addressed urgently, is likely to be a key impediment in the growth of the Food Processing & Preservation Sector in India and in consequence, could impact growth in industrial & production sector as well.

This underscores the need identifying areas where such manpower and skill gaps are critical, and developing focused action plans to improve the situation.

A look at the required initiatives for manpower development in the above sector makes it clear that sustainable development of the sector's manpower requires a collaborative public private effort. The level of commitment demonstrated by each stakeholder would largely determine the direction that the sector heads towards.

Age of participants

The minimum age limit for persons to take part in the scheme is 14 years but there is no upper age limit.

Curriculum Development Process

Following procedure is used for developing course curricula

- Identification of Employable Skills set in a sector based on division of work in the Labour market.
- Development of training modules corresponding to skills set identified so as to provide training for specific & fit for purpose
- Organization of modules in to a Course Matrix indicating vertical and horizontal mobility. The course matrix depicts pictorially relation among various modules, pre requisites for higher level modules and how one can progress from one level to another.
- Development of detailed curriculum and vetting by a trade committee and by the NCVT

(Close involvement of Employers Organizations, State Governments and experts, Vocational Training Providers and other stakeholders are ensured at each stage).

Development of Core Competencies

Possession of proper attitudes is one of the most important attributes of a competent person. Without proper attitudes, the performance of a person gets adversely affected. Hence, systematic efforts will be made to develop attitudes during the training programme. The trainees deal with men, materials and machines. They handle sophisticated tools and instruments. Positive attitudes have to be developed in the trainees by properly guiding them and setting up examples of good attitudes by demonstrated behaviors and by the environment provided during training.

Some important core competencies to be developed are:

1. Communication skills
2. Better usage of English language/Vernacular
3. Presentation skills
4. Self management
5. Resume preparation
6. GD participation/facing techniques
7. Interview facing techniques

Following competencies should also be developed during level-II and higher courses:

1. Ability for planning, organizing and coordinating
2. Creative thinking, problem solving and decision-making
3. Leadership
4. Ability to bear stress
5. Negotiation

Duration of the Programme:

Time taken to gain the qualification will vary according to the pathway taken and will be kept very flexible for persons with different backgrounds and experience. Duration has been prescribed in hours in the curriculum of individual module, which are based on the content and requirements of a MES Module. However, some persons may take more time than the prescribed time. They should be provided reasonable time to complete the course.

Pathways to acquire Qualification:

Access to the qualification could be through:

- ✧ An approved training Programme.

Methodology

The training methods to be used should be appropriate to the development of competencies. The focus of the programme is on “performing” and not on “Knowing”. Lecturing will be restricted to the minimum necessary and emphasis to be given for learning through active participation and involvement.

The training methods will be individual centered to make each person a competent one. Opportunities for individual work will be provided. The learning process will be continuously monitored and feedback will be provided on individual basis.

Demonstrations using different models, audio visual aids and equipment will be used intensively.

Instructional Media Packages

In order to maintain quality of training uniformly all over the country, Instructional Media Packages (Imps) will be developed by the National Instructional Media Institute (NIMI), Chennai.

Assessment

DGE&T will appoint assessing bodies to assess the competencies of the trained persons. The assessing body will be an independent agency, which will not be involved in conducting the training programme. This, in turn, will ensure quality of training and credibility of the scheme. Keeping in view, the target of providing training/testing of one million persons through out the country and to avoid monopoly, more than one assessing bodies will be appointed for a sector or an area.

Certificate

Successful persons will be awarded competency-based certificates issued by **National Council for Vocational Training (NCVT)**.

COURSE MATRIX

Food Processing & Preservation

LEVEL-1

Module -1	Module -2	Module -3	Module -4	Module -5	Module -6
Food Preservation	Baker & Confectioner	Milk & Dairy Products Making Assistant	Agro Products Maker	Food Beverages Making Assistant	Processed Food Products Making Assistant
(Already available in DGET website)					

LEVEL-2

Module -1	Module -2	Module -3	Module -4	Module -5
Fruits & Vegetables Processor	Cereals, Pulses & Oil Seeds Processor (Milling & Baking)	Food Beverages Maker	Milk & Milk Products Maker	Meat, Fish & Poultry Processor

Level - I
Module-II

1. Name of the Module : **Baker & Confectioner**
2. Sector : **Food Processing & Preservation**
3. Code : FOO - 102
4. Entry Qualification : Minimum 8th Standard
5. Age : 14 yrs.
6. Terminal Competency : After completion of this training the participant would be able to:
 a) Operating & maintenance the modern Equipments & machineries
 b) To make bakery & confectionary Products
 c) Process of Packaging & Storing
 d) Maintaining the quality of products
7. Duration : 320 hrs.

8. Contents :-

SL.NO	PRACTICAL	THEORY
1	Cleaning of work area, fire fighting equipments. Familiarization Maintaining general safety. First aid practice & treatment. Safety precautions taken & use safety equipments including of organization & their Food products unit. Handling of tools, equipments, & machineries in the section & proper utilization & upkeep. Indenting & procurement of tools and materials from store as need.	Knowledge of importance on bakery & confectionery in food Industry & its market value. Knowledge of Industrially importance on cereals in food Industry. Knowledge about the sources of accidents. Known the necessary safety & precautions taken in each m/c's. Known to prevention /overcome from accidents. Necessary remedies taken in each machines if fault found.
2	Practice to product the good quality flour to make bread, biscuit and cakes. Practice to make the plain fermented malt from rye flour. Utility of Flour, fat, bakers yeast, sugar and salt to make bread.	Knowledge of different Industrially important bakery products. Knowledge of different type's flour for the bakery products. Quality assurance as per I.S.I. standards of different flour, fat, baker's yeast.

3	Practice to operate the different food machineries to make bread. Practice to make plain bread, fermented bread, protein rich bread and special breads.	Knowledge of principle to make the bread products & types of breads and their uses. Knowledge of Ingredients used in bread Production.
4	Availability of starch in different cereals. Preparation of corn starch, starch biscuits, Namkins, snacks etc. Practice to make different types of specialized biscuits & other products like cookies, crackers Testing of raw material and product for their quality.	Knowledge of Extract from starch & Knowledge of grain starch to use the different products. Knowledge of Ingredients in biscuit & method of mixing to prepare the biscuit Products. Knowledge of Quality standards and evaluation of product.
5	Practice to make different types of ordinary biscuits by hand or machineries.	Knowledge of Machineries involved in biscuit product. Knowledge of equipments: - Mixer, molding machine, oven balance, packing machine use in flour mill.
6	Practice to make different types of ordinary biscuits by hand or machineries. Practice to make different types of specialized cakes. Testing of raw material and product for their quality.	Knowledge of Ingredients in cakes & method of mixing to prepare the cakes products. Knowledge of Machineries involved in cakes product. Knowledge of Quality standards and evaluation of product.
7	Safety measures for handling various Bakery machineries & accessories. Handling of equipments with safely. Identification of Faults and removal of faults.	Knowledge of precautions taken & Safety hazard. Environmental concern & Pollution measure in Paper Products Workshop.
8	Practice on packaging with sealing, storing, & marketing. Marketing through agents, salesman, retailers etc.	Method of techniques of proper packaging of finished products & proper storing in cold storages & refrigerator. Knowledge about the selection of packaging materials. Knowledge of storage and Packaging for bakery items as need. Knowledge of transportation & marketing.
9	Practice on collection of orders and delivery of Bakery & Confectionary.	Maintaining various records and filling up format for booking of various Bakery & Confectionary.

Lists of Tools & Equipments for a batch

SL. No.	Description of tools	Qty
1.	Hand operated moisture meter (to be shared)	04 nos
2.	Moulds of biscuit & breads (to be shared)	08 nos
3.	Spring balance (to be shared)	04 nos
4.	Bread cutting knife	16 sets

5.	Knife of different size (set)	16 sets
6.	Spoons	16 sets
7.	Measuring glass (to be shared)	08 nos
8.	Fruit knife	16 sets
9.	Dies (to be shared)	04 nos
10.	Hand gloves	16 nos
11.	Apron	16 nos
12.	Cap	16 nos
13.	Boots	16 nos
14.	Hand bag	16 nos

Equipment, Machine & Tools

15	Planetary mixer: 3 gear/ Food Processor	01 no
16	Moulds	01 no
17.	Bread cutting machine	01 no
18.	Oven: Standard size with temperature control	01 no
19.	Packing machine	01 no
20.	Electronic balance	01 no
21.	Physical balance	01 no
22.	Working table marble top standard size	01 no
23.	Toffee dies	01 no
24.	Biscuit moulds of different sizes:	As required
25.	Cake dies	As required
26.	Moisture box	01 no
27.	Exhaust box	01 no
28.	Vernier Caliper: 15 cm. 0.01 mm LC	02 nos
29.	Screw Gauge: Micrometer, 0.001 mm LC, 10 cm cap	02 nos
30.	Steel scale: 12 " standard steel	04 nos
31.	Steel tape: Scales 1 meter, and of 50 ft	04 nos
32.	Weight box: For balances up to 2 Kg	02 nos
33.	Cutting equipments : Different knives, Cutters for fruits /Veg.	As required
34.	Sinks: standard size	01no
35.	Hot plate: Electrical 2 KW	01 no
36.	Heat sealing machine: Hand / pedal operated	01 no
37.	Tanks SS : 50 liters capacity, cylindrical with cap	01 no
38.	SS Filter: Sieve type cloth filter, hydraulic,	01 no
39.	Bottle opener: Heavy duty, Stainless Steel	01 no
40.	Burette: 50 ml digital Automatic/ ordinary class	06 nos
41.	Working tables: Stainless Steel Size 6' X 3'	01 nos
42.	Improved stoves: Made of MS with proper safety Measures, Valves etc	02 nos
43.	Stainless steel / Aluminium pots: Different Capacities	01 set
44.	Wooden spoons: Different sizes	01 set
45.	Instructor Chair & Table	01 No
46.	Dual Desk	10 Nos.
47.	Suitable Work tables	04 Nos.
48.	Stools	16 Nos.
49.	Discussion Table	01 No.
50.	Tool Cabinet	01 No.
51.	Trainees Locker with space for 16	01 No.
52.	First Aid Box	01 No.
53.	Book Shelf (glass panel)	01 No.
54.	Storage rack	01 No.

Level -I
Module-III

1. Name of the Module : Milk & Dairy Products Making Assistant
2. Sector : **Food Processing & Preservation**
3. Code : FOO - 103
4. Entry Qualification : Minimum 10th Standard
5. Age : 15 yrs.
6. Terminal Competency : After completion of this training the participant would be able to:
 a) Operating & maintenance the modern Equipments & machineries
 b) Treatment & producing milk related product under prescribed hygienic condition & nutrition value.
 c) Process of Packaging & Storing
 d) Maintaining the quality of products
7. Duration : 320 hrs.
- 8. Contents :-**

SL.NO	PRACTICAL	THEORY
1	Necessity of house keeping. Maintaining general safety. First aid practice & treatment. Safety precautions taken & use safety equipments including fire fighting equipments. Familiarization of organization & their Milk& milk products unit. Handling of tools, equipments, & machineries in the section & proper utilization & upkeep. Indenting & procurement of tools and materials from store as need.	Introduction to Operation white flood revolution & Co-Operative movement. Knowledge of importance on Milk & milk Product in food Industry & its market value. Composition of cow milk and buffaloe milk & nutritive value. Food safety & standard norms.
2	Practice to test the milk by apparatus and chemical to analysis quality of milk. Practice to Storage the milk and keeping quality of milk.	Knowledge of classification & property of milk. Known about the Quality assurance of raw milk. Knowledge of different milk Products. Importance of cold chain, packaging & storing of milk.
3	Practice to Produce the pasteurized Milk. Practice to Produce the standard cow toned,	Knowledge of Principle & method of milk processing. Knowledge of pasteurization.

	double toned, flavored milks, fermented milk. Storage & keeping quality of milk.	Known Standard cow toned, double toned, flavored milks. Knowledge about Ingredients of fermented milk.
4	Practice to Prepare Chhana & Mawa, ghee, Dahi, ice, buttermilk etc . Visit to Dairy Plant.	Knowledge of milk products, paneer, Cheese, Chhana, Mawa. Dahi, Srikhand, Cream, buttermilk & dried milk, condensed milk, Ghee & ice- cream. Known about the Quality assurance of milk products.
5	Preparation of different milk based sweets.	Method of preparation the different milk based sweets. Knowledge of different storage system to keep the sweets safely. Knowledge of packaging & storing of different sweets.
6	Visit to Dairy Plant.	Equipment used e.g. Cream Separator clarifies paneer, cheese vat, pasteurizer, kettle, butter churner, boiler homogenizer.
7	Visit to Dairy Plant.	Knowledge of packaging & storing the milk products and importance.
8	Marketing through agents, salesman, retailers etc. Practice on collection of orders and delivery of milk & milk products.	Knowledge of transportation & marketing the dairy products. Maintaining various records and filling up format for booking of various milk & milk products.

Milk & Dairy Products

SL. No.	Description of tools	Qty
1	Lactometer (to be shared)	04 nos
2	Dairy product catalogue of different product	02 sets
3	Packaging machine hand operated (to be shared)	04 nos
4	Milk testing kit (to be shared)	04 nos
5	Hand operated weighting unit(to be shared)	04 nos
6	Fat measuring kit (to be shared)	04nos
7	Electric Kettle (to be shared)	04 nos
8	Measuring glass (to be shared)	04 nos
9	Hand gloves	04 nos
10	Apron	04 nos
11	Cap	04 nos
12	Boots	08 nos
13	Hand bag	16 nos
14	Milk cans: Made of steel/ Aluminum, 40-100 lit capacity	01
15	Deep fridge	01

16	Steam jacketed kettle with surface scrapper	01
17	Mawa machine	01
18	Crown capping machine	01
19	Centrifuge : For Fat estimation in milk,	01
20	Gerber tubes for fat estimation	02
21	Exhaust box.	01
22	Vernier callipers: 15 cm. 0.01 mm LC	02
23	Screw Gauge: Micrometer, 0.001 mm LC, 10 cm cap	04
24	Steel scale: 12 " standard steel	02
25	Steel tape: Scales 1 meter, and of 50 ft	02
26	Weight box: For balances	01
27	Cutting equipments : Different knives, Cutters for fruits / Veg.	As required
28	Sinks: standard size	01
29	Hot plate: Electrical 2 KW	01
30	Tanks SS : 50 liters capacity, cylindrical with cap	01
31	Working tables: Stainless Steel Size 6' X 3'	01
32	Stainless steel/ Aluminium pots: Different Capacities	As required

Furniture		
Class Room		
33	Instructor Chair & Table	01 No
34	Dual Desk	08 Nos.
Workshop/Lab		
35	Suitable Work tables	04 Nos.
36	Stools	16 Nos.
37	Discussion Table	01 No.
38	Tool Cabinet	01 No.
39	Trainees Locker with space for 16	01 No.
40	First Aid Box	01 No.
41	Book Shelf (glass panel)	01 No.
42	Storage rack	01 No.

Level - I

Module-IV

1. Name of the Module : **Agro Products Maker**
2. Sector : **Food Processing & Preservation**
3. Code : FOO - 104
4. Entry Qualification : Minimum 10th Standard
5. Age : 15 yrs.
6. Terminal Competency : After completion of this training the participant would be able to:
 a) Operating & maintenance the modern Equipments & machineries
 b) Make different Agro products
 c) Process of Packaging & Storing
 d) Maintaining the quality of products
7. Duration : 400 hrs.
8. Contents :-

SL.NO	PRACTICAL	THEORY
1	Necessity of house keeping. Maintaining general safety. First aid practice & treatment. Safety precautions taken & use safety equipments including fire fighting equipments. Familiarization of organization & their Agro Industries products unit. Handling of tools, equipments, & machineries in the section & proper utilization & upkeep. Indenting & procurement of tools and materials from store as need. Conducting survey of the different agro products from the market	Introduction to operation Green revolution. Knowledge of importance on Agro Industries Product in food Industry & its market value. Introduction of agro processing industry Scope of agro processed products for entrepreneurship Knowledge about the sources of accidents. Known the necessary safety & precautions taken in each m/c's. Known to prevention /overcome from accidents.
2	Practice and handling the different agro processing machinery. Preventive maintenance & repairing. Capacity evaluation of different agro processing machines.	Knowledge of different machines used in agro processing industry & know the preventive maintenance. Necessary remedies taken in each machines if fault found. Working principles, cost and capacity of machines in agro processing industry
3	Handling and practice on the equipment. Fault identification and removal of	Equipment used e.g. Flour mill, Mini grain mill, pulverizer, hammer mill, flour

	faults.	separator, dal mill, packing machine (Heat Sealing machine) and balance. Maintenance of equipment with safety.
4	Procurement of grain from Granary. Practice to clean, grade and other pre-processing activities. Practice to grind the wheat & make flour from wheat. Practice to make Suji, Maida, Dalia from wheat floor. Practice to Package the product and labeling on the product.	Knowledge of different grains suitable for agro processing. Knowledge of Primary processing (cleaning, grading & milling etc) of wheat grain. Knowledge of Standard quality for the wheat flour. Knowledge of making the different wheat product.
5	Practice to Pre-treatment in pulse milling like cleaning, grading, soaking & drying. Practice to mill pulses for production of granule e.g. pigeon pea, green gram, Bengal gram. Practice to Package the product and labeling on the product. Uses of wasted materials from granule.	Principle of pulse milling. Knowledge of different Method of pulse milling. Knowledge of Pre-treatment in pulse milling. Waste utilization
6	Practice to Produce the packed whole grains like Bengal gram, black gram, green gram, ground nut etc.	Knowledge of packaging, labeling & storing the pulse products and marketing.
7	Practice to procure and preprocess of spices, cleaning, grading, de-stoning. Practice to grind the spices in machines. Practice to make of spice powder products from coriander, black peeper, red chilly, turmeric etc. Practice to package the whole spice grains for marketing.	Knowledge of different spices and its principle. Method of spice grinding. Knowledge of machinery used for spice grinding. Knowledge of quality assurance the spice product.
8	Demonstrate the Working principle of oil expellers. Practice to work the oil expelling from different oil seeds e.g. mustard, groundnut, rapeseed, sunflower. Practice to filter the phrases oil and packaging properly.	Methods of oil milling & different type of oil expellers. Knowledge of Oilseeds& its properties. Knowledge of machinery used for oil milling and suitable processing the oil seeds. Knowledge of process flow chart for oil milling. Knowledge of Filtration the oil. Knowledge of packaging & packing materials.
9	Practice to process the paddy & milling the paddy to produce the rice.	Properties of paddy for rice milling Process of rice milling Knowledge of Hullers & separation procedure from rice.

10	Practice to work with groundnut decorticators for production of decorticated groundnut.	Knowledge of different groundnut & its cleaning & grading. Knowledge of different groundnut decorticators Knowledge of packaging the groundnut.
11	Pack the given food products and seal & proper store. Arrange the various transport system & study the marketing products.	Knowledge of need and importance of storage and packaging of products. Method of proper packaging of finished products & proper storing. Knowledge of transportation & marketing. Concept of sales services.
12	Knowledge of development of good quality package and testing of the quality with market survey & demand.	Knowledge of Quality standards for packed processed products.

List of Tools & Equipments :

SL. No.	Description of tools	Qty
1.	Moisture meter Hand operated(to be shared)	04
2.	Hand operated spring balance(to be shared)	04
3.	Hand operated packaging kit(to be shared)	08
4.	Sieve set	16
5.	Oil testing kit (to be shared)	04
6.	Pouch packaging/ sealing kit(to be shared)	04
7.	Moisture box (to be -shared)	04
8.	Measuring glass (to be shared)	08
9.	Hand gloves	16
10.	Apron	16
11.	Cap	16
12.	Boots	16
13.	Hammer mill : Power operated, one HP50 Kg/hr	01
14.	Groundnut decorticator hand operated Hand operated 20 KQ/hr	01
15.	Mini dal mill : Power operated, 2 HP 100 Kg/hr	01
16.	Mini rice mill : Power operated, 2 HP 100 Kg/hr	01
17.	Mini oil expeller: Power operated, 10 HP25 litlhr	01
18.	Grain cleaner: Power operated, 01 HP; 300 KQ/hr	01
19.	Mini grain mill : Power operated, 01 HP20 Kg/hr	01
20.	Wheat flour mill : Power operated 5 HP100 Kg/hr	01
21.	Micro pulverizer: Power operated, 2 HP50 Kq/hr	01
22.	Storage bins of different capacity : Aluminum, 100-1000 Kg Capacity with proper outlet and inlet	As required
23	Electric oven: For moisture determination, 0-250.c, digital display, 2'X2'X2'	01
24.	Destoner : For cleaning light materials, air classifier type	01
25.	Packaging material: PP, PE, laminated, Stand pouches	As required

(Furniture & Teaching aids)		
26.	Instructor Chair & Table (Class Room)	01 No each
27	Dual Desk	08 nos
28	Suitable Work tables (Workshop/Lab)	04 nos
29.	Stools(Workshop/Lab)	16 nos
30	Discussion Table(Workshop/Lab)	01 no
31	Tool Cabinet	01 no
32	Trainees Locker with space for 16	01 no
33	First Aid Box	01 no
34	Book Shelf (glass panel)	01 no
35	Storage rack	01 no

Level - I
Module-V

1. Name of the Module : **Food Beverages Making Assistant**
2. Sector : **Food Processing & Preservation**
3. Code : FOO - 105
4. Entry Qualification : Minimum 10th Standard
5. Age : 15 yrs.
6. Terminal Competency : After completion of this training the participant would be able to:
- a) To develop proficiency in producing different Beverages
 - b) Operating & maintenance the modern Equipments & machineries
 - c) Make different Beverage products
 - d) Process of Packaging & Storing
 - e) Maintaining the quality of products
7. Duration : 320 hrs.
8. Contents :-

SL.NO	PRACTICAL	THEORY
1	<p>Necessity of house keeping. Maintaining general safety. First aid practice & treatment. Safety precautions taken & use safety equipments including fire fighting equipments. Familiarization of organization & their Beverage Industries products unit. Handling of tools, equipments, & machineries in the section & proper utilization & upkeep. Indenting & procurement of tools and materials from store as need.</p>	<p>Knowledge of Importance of food beverages for entrepreneurship. Scope of food beverages. Introduction of food beverages industry. Knowledge about the sources of accidents. Known the necessary safety & precautions taken in each m/c's. Known to prevention /overcome from accidents. Types of beverages need of particular beverage. Classification of food beverages. Raw materials used for beverages. PFA - standards for food beverages.</p>
2	<p>Preparation of different soft drinks by the use of machinery & equipments. Quality testing in soft drinks. Quality control in a soft drink product in manufacturing industry. Practice to Package the soft drink products (Bottling, polu pouches, Pepsi type can) & storing properly.</p>	<p>Knowledge of Synthetic soft drinks Knowledge of manufacture Process of soft drinks Knowledge of machineries & equipments to make soft drinks. Knowledge of Quality assurance of water for soft drinks. Food additives used in soft drinks Selection of ingredients for soft drink production.</p>

3	<p>Practice to prepare the different juices from different fruits :-</p> <ul style="list-style-type: none"> • Production of Ready- To Serve (RTS) fruit beverages, • Production of squash, fruit juice, nectar, concentrate • Quality testing of beverage 	<p>Knowledge of different Fruits: - mango, orange, papaya, lemon, jamun.</p> <p>Knowledge of different fruits juices used in Industry.</p> <p>Principle and method of production of different fruits juices.</p> <p>Knowledge of Production of Ready-To-Serve (RTS) fruit beverages,</p> <p>Knowledge of Production of Squash, fruit juice, nectar concentrate, syrup, sherbets.</p> <p>Processes of manufacturing fruits juices & maintain the Quality control in Beverage industry.</p> <p>Knowledge of FPO standards for fruit Beverages.</p>
4	<p>Preparation of malt syrup, badam, pista, herbals, concentrates, rose syrup.</p>	<p>Knowledge of beverage from other materials, grains.</p> <p>Knowledge of malt, vegetable (tomato), herbs & medicinal plants.</p>
5	<p>Practice to purify the general purification techniques.</p> <p>Practice to prepare the mineral water product from mini water treatment plant.</p> <p>Quality of standard water and package & storing water.</p>	<p>Knowledge of principle and method for production of mineral water.</p> <p>Knowledge of different types of water, RO, UV, Ozona Ted.</p> <p>Knowledge of quality standard (BJS) of water.</p>
6	<p>Practice to produce the soda water.</p> <p>Practice the packaging, labeling and storing of soda water.</p>	<p>Knowledge of principle and method of soda water production.</p> <p>Knowledge of quality standards for soda water.</p>
7	<p>Practice to Prepare the malt for fermented beverages.</p> <p>Process of extraction.</p> <p>Process to prepare the citric, vinegar, banana,</p> <p>Process to prepare the pineapple beverages.</p>	<p>Knowledge of principle and method of preparation the fermented beverages.</p> <p>Knowledge of Raw materials used in fermented beverages.</p> <p>Knowledge of processing the fermentation</p> <p>Knowledge of procedure of storage.</p>
8	<p>Practice to handling of machineries & equipments with safely.</p> <p>Identification of fault and remove.</p>	<p>Knowledge of machineries & equipments use in processing of beverages :-</p> <p>Juice extractor, pulpier, fermented, vinegar generator, crown corking machine, bottle filling machine, Soda water m/c , basket press, filter press etc.</p> <p>Knowledge of maintenance of m/cs & safety precautions.</p>
9	<p>Practice to pack the beverage products with seal & store.</p>	<p>Knowledge of packaging & storing the beverage food products and its importance.</p> <p>Method of packaging the beverage food products.</p>
10	<p>Conducting survey of the different Beverage products from the market.</p>	<p>Knowledge of transportation & marketing the dairy products.</p>

Marketing through agents, salesman, retailers etc. Practice on collection of orders and delivery of beverage food products.	Maintaining various records and filling up format for booking of various beverage food products.
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Lists of Tools, Equipments & Machineries

SL.NO	LIST OF TRAINEES KITS	QUANTITY
1	Litmus paper	As required
2	Food Colour kit	16 nos
3	Bottle sealing unit (to be shared)	08 nos
4.	Juice extracting unit (to be shared)	08 nos
5.	Mixie (to be shared)	01 no
6.	Soda making machine (to be shared)	01 no
7.	Hand bag	16 nos
8.	Food quality testing kit (to be shared)	02 nos
9.	Food beverage packets	As per reqr
10.	Moister meter hand operated (To be shared)	04 nos
11.	Moisture box (to be shared)	04 nos
12.	Measuring glass (to be shared)	04 nos
13.	Hand gloves	16 nos
14.	Apron	16 nos
16.	Cap	16 nos
17.	Boots	16 nos

SL.NO	DESCRIPTION OF TOOLS/MACHINERIES	QUANTITY
1.	Oven: 2 KW,	1 no
2.	Seed germinator : Cabinet type, Different chambers, Temp and RH Controller	1 no
3.	Vinegar generator: Chamber made of SS, with scarcer and baffles	1 no
4.	Fermenter: Bioreactor, SS, with sparger and baffles	1 no
5.	Fruit mill	1 no
6.	Automatic pouch machine / filler sealer machine	1 no
7.	Kettle	1 no
8.	Steel scale: 12 " standard steel	2 nos
9.	Steel tape: Scales 1 meter, and of 50 ft	02 nos
10.	Weight box: For balances	1 no
11.	Cutting equipments : Different knives, Cutters for fruits Vegetables	As required
12.	Sinks: standard size	1 no
13.	Exhaust box	1 no
14.	Improved stoves: Made of MS with proper safety Measures, Valves etc	02

15.	Stainless steel / Aluminum pots: Different Capacities	As required
16.	Wooden spoons: Different sizes	As required
17.	Liquid filling machine: For filling liquid in bottles, 200 ml, 500 ml, 1000 ml. Manual	01 each
18.	SS filter: Sieve type cloth filter, hydraulic,	01
19.	Tanks SS : 30 liters capacity, cylindrical with cap	01 no
20.	Syrup tanks: 30, 60 lit capacity SS	01 each
21.	Bottle opener: Heavy duty, Stainless Steel	04

Furniture :-

Class Room

1	Instructor Chair & Table	01 No
2	Dual Desk	10 Nos.

Workshop/Lab

1.	Storage rack	01 No.
2.	Tool Cabinet	01 No.
3.	Book Shelf (glass panel)	01 No.
4.	First Aid Box	01 No.

Level - I Module-VI

1. Name of the Module : **Processed Food Products Making Assistant**
2. Sector : **Food Processing & Preservation**
3. Code : FOO - 106
4. Entry Qualification : Minimum 10th Standard
5. Age : 15 yrs.
6. Terminal Competency : After completion of this training the participant would be able to:
 a) To develop proficiency skill in producing different processed food products.
 b) Operating & maintenance the modern Equipments & machineries
 c) Make different processed food products with quality assurance.
 d) Process of Packaging , Storing & marketing
7. Duration : 320 hrs.
8. Contents :-

SL.NO	PRACTICAL	THEORY
1	Necessity of house keeping. Maintaining general safety. First aid practice & treatment. Safety precautions taken & use safety equipments including fire fighting equipments. Familiarization of organization & their Process Food products unit. Handling of tools, equipments, & machineries in the section & proper utilization & upkeep. Indenting & procurement of tools and materials from store as need. Conducting survey of the different Process Food products from the market.	Knowledge of Importance of Process food products for entrepreneurship. Scope of Process food products. Introduction of Process food products industry. Knowledge about the sources of accidents. Known the necessary safety & precautions taken in each m/c's. Known to prevention /overcome from accidents. Types of food articles & need of particular Process of food products. Classification of Process food products. Raw materials used for Process of food products & maintain standards.
2	Meat processing: Cutting the meat & remove carcassing & sanitation. Practice cleaning & storing system. Handling and practice on meat processing equipment safely. Practice on canning, pickling. Practice	Knowledge about method of meat processing. Knowledge of equipments:- Meat mincer, cutting machine, canning unit, packaging machine. Post mortem changes during meat processing.

	preservation of meat.	Quality of meat Canning, pickling,
3	Experiment on fish quality for processing. Practice to produce the dehydrated cannery pickle fish, Fish meal protein, fish meal powder. Practice to preserve the fish.	Principle and methods of fish processing. Knowledge of quality of fish suitable for processing. Knowledge of dehydration, canning, pickling of fish, Fishmeal protein, fishmeal powder.
4	Production methods of egg albumin, powder and other useful products from egg Preparation of egg pickle Preparation of canned egg and canned egg pickle Chicken processing Quality testing of chicken meat Preparation of processed product from chicken e.g. Sausages, pickle, dried chicken.	Importance of knowledge on egg production. Knowledge of storage and preservation methods of egg. Knowledge of Production methods of egg albumin, powder and other useful products from eggs. Quality of egg and products Pickling & canning of egg. Methods of chicken processing
5	Handling and practice of Soya plant & use of equipments. Preparation and extraction of natural colour and flavours. Preparation of food additives. Practice to prepare the soya milk, soya paneer (tofu), soyaatta, soya-snacks, soya srikhand, namkins	Knowledge of Soya products & its importance. Knowledge of Soya plant. Processing methods of soya milk. Colours and flavours used in food industry. Methods of production of natural colour and flavours. Knowledge of soya paneer (tofu), soya-atta and soya snacks, soya-srikhand & namkins.
6	Procurement the ingredients for papad production. Handling and practice of papad press & use of equipments. Practice to prepare the different types of papad.	Knowledge of raw materials for papad production. Knowledge of papad press. Method of preparation of different types of papad. Knowledge of quality assurance of papad & Packaging.
7	Practice Food preservation using natural and chemical additives. Handling and practice of preservation equipments.	Use of different food additives for preservation. Knowledge of Seed germinator & collect in refrigerator.
8	Practice to Contact with customers. Practice to cost the estimate of different products. Conducting survey of the different products	Knowledge of market survey procedures. Knowledge of marketing strategies. Methods of marketing feedback.

from the market. Marketing through agents, salesman, retailers etc. Practice on collection of orders and delivery of different food products.	Knowledge of cost analysis & attractive packaging. Knowledge of advertising procedure.
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Lists of Tools, Equipments & Machineries for a batch

SL.NO	LIST OF TRAINEES KITS	QUANTITY
1	Moisture meter (to be shared)	04 nos
2	Moisture box (to be shared)	04 nos
3.	Knife	16 sets
4.	Cutters (to be shared)	04 nos
5.	Sprouter (to be shared)	04 nos
6.	Food colour kit	As required
7	Heat sealing machine (to be shared)	04
8	Food packaging kit (to be shared)	04
9	Plastic packaging sealing machine (to be shared)	04
10.	Litmus paper	As required
11.	Lactometer (to be shared)	04 nos
12.	Measuring glass (to be shared)	08 nos
13.	Hand gloves	16 nos
14.	Apron	16 nos
15.	Cap	16 nos
16.	Boots	16 nos
17.	Hand bag	16 nos

SL.NO	DESCRIPTION OF TOOLS/MACHINERIES	QUANTITY
1.	Platform Scale balance:	01 no
2.	Meat mincer	01 no
3.	Soya milk plant with kettle and paneer press:	01 no
4.	Papad press and dough mixer: Hand operated, 50 papad/h.	01 no
5.	Meat Cutting knives,: Heavy duty SS	As required
6.	Seed germinator : Cabinet type, Different chambers, Temp anf RH Controller	01 no
7.	Vinegar generator: Chamber made of SS, with sparger and baffles	01 no
8.	Fermenter : Bioreactor, SS, with sparger and baffles	01 no
9.	Vegetable slicing machine	01 no
10.	Autoclave	01 no
11.	Working tables: Stail}less Steel Size 6' X 3'	01
12.	Stainless steel knives: : 12-15 cm blade	As required
13.	Spoons: Stainless steel, various shapes and sizes	As required
14.	Household sieves: Stainless steel	As required

Furniture :-**Class Room**

1	Instructor Chair & Table	01 No
2	Dual Desk	08 Nos.

Workshop/Lab

1	Work tables	04 Nos.
2	Stools	16 Nos.
3	Discussion Table	01 No.
4	Tool Cabinet	01 No.
5	Trainees Locker with space for 16	01 No.
6	First Aid Box	01 No.
7	Book Shelf (glass panel)	01 No.
8	Storage rack	01 No.

Level - II

Module-I

1. Name of the Module : **FRUITS AND VEGETABLES PROCESSOR**
2. Sector : **Food Processing & Preservation**
3. Code : FOO - 207
4. Entry Qualification : Minimum 10th Standard + Module -1 of Level -1
5. Age : 16 yrs.
6. Terminal Competency : After completion of this training the participant would be able to:
 a) To develop proficiency skill in producing different processed fruits & vegetables food products.
 b) Operating & maintenance the modern Equipments & machineries
 c) Make different processed food products with quality assurance.
 d) Process of Packaging, Storing & marketing
7. Duration : 320 hrs.

8. Contents :-

SL.NO	PRACTICAL	THEORY
1	Procure seasonal fruits and vegetable products. Collect different categories fruits and vegetable products according to criteria. Practice to operate different food machineries.	Introduction: - Importance of Fruits and vegetables & its marketing aspects. Preservation Technology:- Nature of the fruits & vegetables in respect of their preservation . Knowledge of different terms used in processing. Knowledge of groups of fruits and vegetables on the basis of pH, physiology changed (perishable nature) technology. Knowledge of Principle & techniques involved for different Fruit & Vegetable preservation.
2	Practice to operate Canning operations:- Mango slice, Guava, Pineapple, Strawberry, Grapes, Potato, Cucumber, Mushroom, Spinach, Cauliflower, Cabbage etc	Knowledge of Canning operations on fruits and vegetables. Process flow diagram for canning, Knowledge of canning machineries. pretreatments before canning operations, basic requirements (brine/syrup/chemicals)
3	Drying carryout operations on fruits and vegetables using different dryers. Drying process:- Mango slice, Apple rings, Grapes, Pear, Pineapple, Fig, Banana, Pomegranate,	Fruits and vegetable drying/dehydration: General methods of fruits & vegetable drying /dehydration, sun drying, mechanical drying. Types of dryers, characteristics of dried fruits and vegetables, treatments prior to drying.

	Bael fruit, Papaya & other fruits, Tomato slices, Okra, Brinjal, Potato, Ginger, Bitter guard & other vegetables.	General process of fruit and vegetable drying. Specialized drying operations in fruits and vegetables.
4	Practice to make jam, jellies, juices etc. Test pectin in fruit juices & pulps Practice to make different types of pickles.	Principle of making jam and jellies as per suitability of the fruits. Process flow diagram for jam and jellies. Test of <u>pectin</u> for jam and jelly preparation. Knowledge of glazed fruits, candy, fruit bar and toffees: Principle and methods of production.
5	Visit different food processing plants and write a report.	Pickles: Principle of pickle production, different types of pickles from fruits and vegetables, fermented pickles, oil pickles, vinegar pickles.
6	Practice to prepare of different fruit jams like, Mango, Apple, Pineapple, Banana, Papaya, Amla, Mixed fruit & other fruits. Practice to prepare the different fruit jelly from fruits like, Apple, Guava, Jackfruit, Amla & other fruits.	Methods of preparation of tomato ketchup, chutney, sauce, puree, paste. Knowledge of manufacturing process of Potato chip, finger chips and use of machinery. Knowledge of different types of vinegars. Principle of vinegar production. Characteristics of good quality vinegar.
7	Prepare jam and jelly marmalades. Test end point in jam and jelly. Prepare glazed fruits, candy, fruit bar and toffees.	Processing techniques for proper utilization of wasteful fruits and vegetables. Knowledge of quality factors in fruit and vegetable processing & preservation. Knowledge of storage techniques for fruits and vegetables in refrigeration & cold storage.
8	Prepare different types of pickle like Fermented pickle, oil pickle, Vinegar pickles & mixed pickles from fruits and vegetables. Prepare tomato ketchup, sauce, puree & paste.	Knowledge of Analytical methods for evaluation of chemical and nutritional composition of fruits and vegetables & equipments use for above. Safety precautions taken in fruits and vegetable industry & finding the faults in proper location.
9	Prepare potato chips & finger chips. Prepare synthetic, fermented and flavored vinegars. Prepare products from wastes e.g. Vinegar from pineapple waste, pectin from citrus fruits wastes, vinegar and protein isolate mango kernel, starches. Analyse fruits and vegetables for their quality. Identify fault and take corrective measures.	Knowledge of Indian Food Standard :- Prevention of Food adulteration Act 1954(37-1954) Fruit produced order 1955. Any order issued under essential commodity Act 1955. International Food Standard :- (SPS, TBT, Drug, Residues Chemicals, GMO). Codex Alimentarius (FAO Food & Nutrition Paper) FAO2003.

10	Pack the given food products and seal Practice to Contact with customers.	Knowledge of CRM(Customer related management) - Marketing & soft skill, leadership, problem solving, decision making skill etc.
11	Practice to cost the estimate of different products. Conducting survey of the different products from the market. Marketing through agents, salesman, retailers etc. Practice on collection of orders and delivery of different food products.	Knowledge of market survey procedures. Knowledge of marketing strategies. Methods of marketing feedback. Knowledge of cost analysis & attractive packaging. Knowledge of advertising procedure.

Lists of Tools, Equipments & Machineries for a batch

SL.NO	DESCRIPTION OF TOOLS/MACHINERIES	QUANTITY
1.	Working tables	02
2.	Improved stoves	03
3.	Stainless steel pots of different capacities	04 sets
4.	Stainless steel knives, 12-15 cm blade	08
5.	Stainless steel spoons, various shapes and sizes	08 sets
6.	Glass jars, various sizes and screw-on caps	50
7.	Bottle brushes	10
8.	Solar drier	01
9.	Wooden spoons	08
10.	Juice extractor	02
11.	Pulper	01
12.	Vinegar generator	02
13.	Fermenter,	01
14.	Crown corking machine	01
15.	Bottle filling machine	01
16.	Cabinet dryer	01
17.	Soda water machine	01
18.	Basket press	01
19.	Filter press	01
20.	Pouch packing machine	01
21.	Farm fill seal machine	01
22.	Vegetable cutter	01
23.	Food Processor with vegetable cutting attachment	01

Level - II
Module-II

1. Name of the Module : **CEREALS, PULSES&OILSEEDS PROCESSOR**
(MILLING & BAKING)
2. Sector : **Food Processing & Preservation**
3. Code : FOO - 208
4. Entry Qualification : Minimum 10th Standard + Module-IV of Level -1
5. Age : 15 yrs.
6. Terminal Competency : After completion of training the participant would be able to:
 a) To develop proficiency skill in producing different processed Cereals, pulses & oilseeds food products.
 b) Operating & maintenance the modern Equipments & machineries
 c) Make different Cereals, pulses & oilseeds food products with quality assurance.
 d) Process of Packaging, Storing & marketing
7. Duration : 320 hrs.
8. Contents :-

SL.NO	PRACTICAL	THEORY
1	Market carryout survey for the competition among the available bakery products. Clean, grade and carryout other pre-processing activities on cereal, pulses & oil seeds.	Introduction to industrially important cereals, pulses and oil seeds. Importance of role and share of bakery and confectionery in food industry. Knowledge of different industrial bakery products. Knowledge of different cereal and flours for the bakery products. Knowledge of quality of flour for the production of bakery items. Methods of cleaning, grading, milling & associated precautions.
2	Select material & ingredients for production of breads. Operate different food machineries.	Known about Primary processing of wheat. Knowledge of standards wheat for the flour. Method of production of different wheat products. Role of flour, fat, bakers, yeast, sugar and salt as bakery ingredient. I.S.I. standards for flour, fat, Baker's yeast.
3	Practice to prepare Breads: Plain bread, Fermented bread, Protein rich bread & Special breads	Bread: Principles involved for bread production different types of breads and their properties, ingredients used and their role in

	Practice to prepare Popular biscuits, Specialized biscuits, Other products like cookies, crackers.	bread production, factors affecting the quality of the bread. Biscuits: Method of biscuit production, ingredients for biscuit production and their role in the quality of the biscuits, machinery involved in biscuit production. Knowledge of factors, affecting the quality.
4	Practice to prepare the different types of popular cakes & different types of specialized cakes. To prepare the other confectionary items : Starches: availability of starch in different cereals. Different uses of starch, extraction of starch, different products of grain starch.	Knowledge of methods for the production of cakes, ingredients for cake production, machinery involved in cake: production, factors affecting the quality. Knowledge of Corn starch, Starch biscuits, namkins, Snacks etc.
5	Test raw material and product for their quality. Prepare noodles and extruded food products using machine safely. Identification faults and remove. Observe hygienic practices	Knowledge of machinery and equipments used in bakeries e.g. flour mill, mixer, moulding machines, oven balance, packing machines, operating guidelines. Method of preparation the noodles and extruded foods & Soya products. Method of processing the soya-atta, soya-snacks, namkins, soya milk, soya paneer (tofu), soya srikhand. Knowledge of Hygiene & safety considerations.
6	Prepare papad food products & using machine safely. Identification faults and remove. Observe hygienic practices	Knowledge of raw materials for papad production. Method of preparation of different types of papads & use of machineries. Quality assurance of papad, mini papads. Maintain Hygiene & safety considerations & its measures. Knowledge of packaging and storing.
7	Practice to operate the machineries and equipments used in bakeries e.g. flour mill, mixer, moulding machines, oven balance, packing machines, operating guidelines.	Indian food standard:- Food safety standard Act 2005 & Bill 2005. Any order issued under essential commodity Act 1955. Prevention of food adulteration Act 1954(37-1954). Hazard Analysis & Critical Control Point (HACCP). International Food Standard (SPS, TBT, Drug, Residues Chemicals, GMO). Codex Alimentarius (FAO Food & Nutrition

		Paper) FAO 2003.
8	Pack the given food products and seal Practice to Contact with customers.	Knowledge of CRM(Customer related management) - Marketing & soft skill, leadership, problem solving, decision making skill etc.
9	Practice to cost the estimate of different products. Conducting survey of the different products from the market. Marketing through agents, salesman, retailers etc. Practice on collection of orders and delivery of different food products.	Knowledge of market survey procedures. Knowledge of marketing strategies. Methods of marketing feedback. Knowledge of cost analysis & attractive packaging. Knowledge of advertising procedure.

List of Equipment, Tools and Instruments

(CEREALS, PULSES&OILSEEDS PROCESSING (MILLING & BAKING))

SI. No.	Item / Specification	Quantity
1.	Flour mill/mini grain mill	1
2.	Planetary mixer	1
3.	Moulding machines	1
4.	Sheeting machine	1
5.	Bread cutting machine	1
6.	Oven	1
7.	Packing machine	1
8.	Electronic balance	2
9.	Physical balance	2
10.	Working Table SS	2
11.	Biscuit moulds of different sizes	10
12.	Cake dies	20
13.	Grain cleaner	01
14.	Mini grain mill	01
15.	Wheat flour mill	01
16.	Micro Pulverizer	01
17.	Hammer mill	01
18.	Cabinet air dryer	01
19.	Pouch Packaging/Sealing machine	04

20.	Storage Bins of different capacity	01
21.	Electronic balance	02
22.	Platform scale balance	01
23.	Electric oven	02
24.	Moisture box	01
25.	Packaging material	Assorted
26.	Destoner	1
27.	Papad Press	1

- Raw material and consumables are not included in the list

Level - II
Module-III

1. Name of the Module : **FOOD BEVERAGE MAKER**
2. Sector : **Food Processing & Preservation**
3. Code : FOO - 209
4. Entry Qualification : Minimum 10th Standard + Module -V of Level -1
5. Age : 15 yrs.
6. Terminal Competency : After completion of training the participant would be able to:
 a) To develop proficiency skill in producing different food beverage products.
 b) Operating & maintenance the modern Equipments & machineries
 c) Make different food beverage products with quality assurance.
 d) Process of Packaging, Storing & marketing
7. Duration : 320 hrs.
8. Contents :-

SL.NO	PRACTICAL	THEORY
1	Study of the different food beverages available in the market. Identify different food beverages and their categories. Select different raw materials for food beverage production. Prepare beverages hygienically. Food additives used in beverages. Quality control in a beverage industry.	Introduction, importance of food beverages for: entrepreneurship development, scope of food beverages, need of particular beverage. Types of beverages. Definition and classification of food beverages. Raw materials used for beverages, and their properties. Standards for food beverages. Quality of water for beverages.
2	Select ingredients for soft drink production. Practice to prepare different soft drinks. Pack soft drinks (Bottling, poly pouches, peps type, can, etc). Test quality in soft drinks & water. Prepare different types of fruit juices.	Types & methods of preparation of fruit juices, syrups, sherbets, fermented and non fermented beverages, alcoholic beverages. Carbonated and non carbonated beverages, synthetic juices, soft drinks types and methods of preparation.
3	Prepare Ready- To-Serve (RTS) fruit beverages. Prepare squash, fruit juice, nectar, concentrate. Test quality of beverage.	Principle and methods for fruits juice making. Process of manufacture of fruits juices. Machinery used in different fruits juice extraction. Methods of preparation of Ready- To-Serve

	Prepare malt syrup, badam, pista, herbal, concentrates, rose syrup.	(RTS) fruit: beverages. Methods of preparation of Squash, fruit juice, nectar: concentrate, symp, sherbets.
4	Practice to Purify beverages using proper techniques. Prepare mineral water from mini water treatment plant. Test quality of packaged water.	Quality control in Beverage industry. FPO standards for fruit Beverages. Beverage from other materials & grains. Malt, vegetable (tomato), herbs & medicinal plants.
5	Prepare soda water. Pack, label and store of soda water. Prepare malt extract. Practice to prepare beer. Prepare cider, vinegar, banana, pineapple beverages. Operate all equipment safely. Identify and remove faults in machines.	Principle and method for production of mineral water. Principle and Method of soda water production, Quality standards, raw material used. Equipment used e.g. Juice extractor, pulper, fermenter, vinegar generator, crown corking machine, bottle filling, machine, Soda water machine, basket press and filter press.
6	Indian food standard:- Food safety standard Act 2005 & Bill 2005. Any order issued under essential commodity Act 1955. Prevention of food adulteration Act 1954(37-1954). Hazard Analysis & Critical Control Point (HACCP). International Food Standard (SPS, TBT, Drug, Residues Chemicals, GMO). Codex Alimentarius (FAO Food & Nutrition Paper) FAO 2003.	Knowledge of Quality standard (BIS) of water. Different types of water, RO, UV, Ozonated water. Knowledge of Safety & hygiene.
7	Pack the given food products and seal. Practice to Contact with customers.	Knowledge of CRM(Customer related management) - Marketing & soft skill, leadership, problem solving, decision making skill etc.
8	Practice to cost the estimate of different products. Conducting survey of the different products from the market. Marketing through agents, salesman, retailers etc. Practice on collection of orders and delivery of different food products.	Knowledge of market survey procedures. Knowledge of marketing strategies. Methods of marketing feedback. Knowledge of cost analysis & attractive packaging. Knowledge of advertising procedure.

List of equipment, tools and instruments

Sl. No.	Item / Specification	Quantity
1.	Juice extractor	01
2.	Pulper	01
3.	Vinegar generator	01
4.	Fermenter,	01

5.	Crown corking machine	01
6.	Bottle filling machine	01
7.	Vacuum filter	01
8.	Soda water machine	01
9.	Basket press	01
10.	Filter press	01
11.	Pouch packing machine	01
12.	Farm fill seal machine	01
13.	Centrifuge	01
14.	Working table	02
15.	Improved stoves	03
16.	Stainless steel pots	05 sets
17.	Storage vessel, SS	02
18.	Stainless steel knives	12
19.	Glass jars, various sizes and screw-on caps	100
20.	Wooden spoons	05
21.	Bottles	100
22.	Crown caps	100
23.	Lemon Extractor	01
24.	Laboratory Spray dryer	01

- **Raw material and consumables are not included in the list**

Level - II
Module-IV

1. Name of the Module : **MILK AND MILK PRODUCTS MAKER**
2. Sector : **Food Processing & Preservation**
3. Code : FOO - 210
4. Entry Qualification : Minimum 10th Standard + Module -III of Level -1
5. Age : 15 yrs.
6. Terminal Competency : After completion of training the participant would be able to:
 a) To develop proficiency skill in producing different milk & milk food products.
 b) Operating & maintenance the modern Equipments & machineries
 c) Make different milk & milk products with quality assurance.
 d) Process of Packaging, Storing & marketing
7. Duration : 240 hrs.

8. Contents :-

SL.NO	PRACTICAL	THEORY
1	Conduct market survey of different dairy products available. Survey of availability of the raw material for dairy industry. Visit and study of a dairy plant. Test milk for its quality Conduct primary processing of market milk & store.	Importance of dairy industrial opportunities of employment in the vocation. Property of milk, quality of raw milk. Different products made from the milk. Different dairy products useful for marketing.
2	Prepare to produce the • Standard milk, • Toned milk, • Double toned milk Storing the milk products hygienically.	Principle and methods used for milk processing. Quality parameters. Methods for production of different types of milks pasteurized, standard, toned, double toned, flavoured milk. Ingredients of special milks, fermented milk. Food safety & hygienic microbiological aspects.
3	Prepare to produce the • Pasteurized milk, • Flavoured milk, • Fermented milk • Storing the milk products hygienically.	Preparation methods of paneer, Chhena, Mawa. Methods of preparation of Dahi, Srikhand, Cream, Buttermilk etc. Methods of Ghee production, quality of all the above products.
4	Practice to prepare the followings :- • Paneer • Chhena	Principles and methods of ice-cream production, quality of ice cream, different types of ice cream Knowledge of followings :-

	<ul style="list-style-type: none"> • Mawa • Dahi • Srikhand • Ghee • Buttermilk <p>Production of Ghee carryout overrun calculations. Prepare different milk based sweets.</p>	<p>Butter production, quality of butter. Overrun calculation. Preparation methods of different milk based sweets. Storage of sweets. Other dairy products like dried milk, condensed milk, cheese. Food safety & standard Act 2006. Hygiene in dairy processing unit, cleaning systems in dairy industry. Equipment used : Cream Separator, cheese vat, pasteurizer, kettle, butter churner, boiler, (optionally ./ mini dairy plant).</p>
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List of equipment, tools and instruments

Sl. No.	Item / Specification	Quantity
1.	Mini dairy plant	01
2.	Milk Chiller	01
3.	Milk cans	10
4.	Cream separator,	01
5.	Cheese vat	01
6.	Plate pasteurizer	01
7.	Butter churner	01
8.	Boiler	01
9.	Deep fridge	01
10.	kettle	02
11.	Mawa machine	01
12.	Crown capping machine	04
13.	Working table SS	02
14.	Centrifuge	02
15.	Gerber tubes for fat estimation	01

- Raw material and consumables are not included in the list

Level -II
Module -V

1. Name of the Module : **MEAT, FISH & POULTRY PROCESSOR**
2. Sector : **Food Processing & Preservation**
3. Code : FOO - 211
4. Entry Qualification : Minimum 10th Standard + Module -VI of Level-1
5. Age : 15 yrs.
6. Terminal Competency : After completion of training the participant would be able to:
 a) To develop proficiency skill in producing different meat, fish & poultry processing food products.
 b) Operating & maintenance the modern Equipments & machineries
 c) Make different meat, fish & poultry processing food products with quality assurance.
 d) Process of Packaging, Storing & marketing
7. Duration : 120 hrs.

8. Contents :-

SL.NO	PRACTICAL	THEORY
1	Conduct survey of the different meat processing industries. Carryout survey of the different processed products from meat, fish and poultry. Carryout meat processing: cutting (carcassing), cleaning, sanitation & storage. Conduct practices on canning, pickling, preservation of meat.	Introduction, importance of meat processing for entrepreneurship development. Scope of meat processing industry. Methods of meat processing. Post mortem changes during meat processing. Known about quality of meat. Canning, pickling, preservation of meat.
2	Check quality of fish for processing. Produce Dehydrated canned, pickled fish, Fishmeal protein and fishmeal powder.	Principle and methods of fish processing Quality of fish suitable for processing. Dehydration, canning, pickling of fish, Fishmeal protein fishmeal powder.

3	Process chicken and test quality. Prepare processed product from chicken and other birds e.g. Sausages, pickle, dried chicken.	Importance of egg production. Storage and preservation methods of eggs. Production methods of egg albumin. powder and other / useful products from egg. Quality of egg and products. Pickling, canning of egg. Methods of chicken processing, techniques involved In processing. Processing of other birds.
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List of equipment, tools and instruments for a batch

Sl. No.	Item / Specification	Quantity
1.	Meat mincer	01
2.	Pulverizer	01
3.	Meat cutting knives, heavy duty	04
4.	Cooking stoves	02
5.	Water purifier	01
6.	Seed germinator	01
7.	Heat sealing machine	01
8.	Cutting machine	01
9.	Canning unit	01
10.	Heat sealing machine	01
11.	Lug cap bottle sealing machine	01
12.	Cabinet dryer	01
13.	Refrigerator	02
14.	Deep fridge	02
15.	Pressure cookers	04
16.	Steel Bhagonas	05
17.	SS Ladles	05
18.	Wooden paltas	05

- Raw material and consumables are not included in the list