

### III HOME SCIENCE GROUP

#### (I) TRADE : FOOD PRESERVATION

12<sup>th</sup> VOCATIONAL

PAPER-I

FOOD PROCESSING

THEORY

Time : 2 hrs

Theory : 30 Marks

InA : 10 Marks

Practical : 50 Marks

Total : 90 Marks

#### Food Processing

Definition, Types, Technique, Common Terms used in Food Processing.

#### Unit Operation

Definition, Types of Unit Operation, General Principles of Food Processing, Small and Large Scale Processing, Sanitation and Hygiene at Food Processing unit.

#### Processing by Heat

Pasteurization and Sterilization, Preparation of Milk Products- Cheese, Condensed and Evaporated Milk, Whole and Skim Milk Powder and Ice Cream, Curd and Yogurt, Difference between Curd and Yogurt, Processing of Vegetable and Fruit by Heat.

#### Canning

Definition, Types of Technique, General Outlines of Canning Unit Operations - Receiving, Selecting, Weighing, Sorting, Preparing, Blanching, Filling, Exhausting, Seaming, Sterilizing, Cooling, Packing, Labeling, Warehousing & Dispatching, Processing and Canning of Various Seasonal Fruits at Domestic and Commercial Level- Apples, Pears, Mangoes, Papaya and Vegetables Like Beans, Tomatoes, Carrots, Potatoes, and Peas.

#### Can Spoilage

Spoilage of Canned Fruits and Vegetables, Causes and their Control

#### By-Products

Utilization of Fruit and Vegetable Waste of Lemon, Orange, Guava, Mangoes, Banana, Grapes, Tomatoes, Peas and Spinach.

#### FOOD PROCESSING

Time: 3 hrs

PRACTICAL

Marks : 50

- Washing, sterilizing, disinfecting bottles and cans.
- Pasteurization and sterilization of fruit and vegetable juices in bottles.
- Visit to canning/ bottling unit to observe application of seam checking gauge, micrometer, pressure gauge, vacuum gauge, cut out analysis of cans etc.
- Preparation of paneer, cheese, curd, yogurt.
- Preparation of- lassi, flavored milk, ice-cream, butter, ghee, kalakand and condensed milk.
- Canning of mango, pineapple, citrus fruits, papaya, peas, tomato & spinach/sauv.
- Utilization of by products in preparation of lemon peel pickle, orange peel marmalade and citrus peel candy.

## TRADE : FOOD PRESERVATION

12<sup>th</sup> VOCATIONAL

PAPER-II

PLANT MANAGEMENT

THEORY

Time : 2 hrs

Theory : 30Marks

InA : 10Marks

Practical : 50 Marks

Total : 90Marks

### Factory Layout Plan

Plant Layout, Selection of Site, Water Supply, Drainage, Labour, Equipment Forward and Backward Linkage, Maintenance of Equipment.

### Water

Types, Chemical and Bacteriological Qualities of Water, Management of Water, Impact of Hard Water on Equipment, Food and Containers, Chlorination of Water and its Importance in Food Processing.

### Detergents and Cleaning Agents

Types, Uses and Selection of Cleaning Agents for Food Industry, Working with detergents and other Cleaning Agents in a Food Processing Unit, Precautions.

### Hygiene and Sanitation

Hygienic Standards for Plant and Staff, Disinfection in a Food Processing Unit and Waste Disposal of Plant.

### Pests and Rodents

Detection of Pests and Rodents in a Food Factory, their Effects, Controlling and Elimination of Pests and Rodents in Food unit.

Book Keeping, Balance Sheet and Profit & Loss Analysis.

### Project Report

Introduction, Need, Importance and Components of Project Report.

### Documentation

Introduction, Types, Need of documentation in Food Industry, Maintaining Documents and Inspection of Raw Material in Food Industry, Methods of Documentation, Store Keeping.

## PLANT MANAGEMENT

Time: 3 hrs

PRACTICAL

Marks : 50

- Visit to a food factory and write report on plant layout.
- Write a project report on setting up of a food factory.
- Write a report on sanitary standards of a food factory.
- Make a chart of Planning layout of food processing unit.
- Determination of hardness of water.
- Practical training to carry out measures for pest control.
- Cleaning and maintenance of equipment.
- Procedure and filling-up of required documents - Loan forms, licenses, electric connections, FPO returns, sales tax returns etc.

**TRADE : FOOD PRESERVATION****12<sup>th</sup>VOCATIONAL.****PAPER-III****FOOD PACKAGING****THEORY****Time : 2 hrs****Theory : 30Marks****InA : 10Marks****Practical : 50 Marks****Total : 90Marks****Food Packaging**

Introduction, Definition, Importance of Packaging of Food, Modes and Economic Properties, Advantages and Disadvantages and scope of food Packaging.

**Packing Materials**

Origin, Types - Traditional and Modern, Properties, Economical Status and Eco Friendly Packaging Materials.

**Modern Packaging Materials**

Introduction, Availability, Utility and Recycling of - O.T.S. Cans, Bottles, P.V.C. L.D.P.E., H.D.P.E., Laminators, Retort Pouch, Pet Bottles, Glass.

**Paper Packaging**

Introduction, Types, Uses, Limitations of - Butter Paper, Wax Paper, Cellophane Paper, Brown Paper, Plastic Films, Aluminum Foils, Poly Coated Paper and Laminations.

**Disposable Packaging**

Introduction, Meaning, Uses and Economical Status of Retort Pouch (Boil in Pouch), Tetra Pack, Flexible Laminate and Poly Pack, Limitations of Different Disposable Packaging Material, Permeability of Oxygen and Moisture.

**Modern Food Packaging**

Introduction and Uses of - Edible Packaging, Aerosol Packaging, Skin Packs, Blister Packs.

**Crushing Material**

Wood Shearing, Paper Shearing, Thermocols, Corrugated Boards- Importance, Criteria for Selection.

## **Wooden Packaging**

**Introduction, History, Uses, Advantages and Disadvantages of Wooden Containers In Food Processing Industry, their Replacements with Changing Situations.**

## **Sealing Material**

**Types of Strips, Seals, Veils, Wad and Closures for Local and Export Markets.**

### **FOOD PACKAGING**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Make a report on packaging of foods in food industry.
- Market survey of packing materials availability.
- Preparation of a scrap book with samples of different packaging materials.
- Suitability of butter paper, wax paper, cellophane and other papers.
- Measurements of closure caps, wad and their identifications.
- Exhibition of food products at production centres.
- 3D presentation of primary, secondary and tertiary food packaging.