

**III HOME SCIENCE GROUP**  
**(I) TRADE : FOOD PRESERVATION**

**12<sup>th</sup> VOCATIONAL**  
**FOOD PROCESSING**  
**THEORY**

**PAPER-I**

**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 can 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/saag.
- 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 : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90 Marks**

### **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 lay out 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 return etc.

**TRADE : FOOD PRESERVATION**12<sup>th</sup> VOCATIONAL

PAPER-III

FOOD PACKAGING

THEORY

Time : 2 hrs

Theory : 30 Marks

InA : 10 Marks

Practical : 50 Marks

Total : 90 Marks

**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, Vells, Wad and Closures for Local and Export Markets.

### **FOOD PACKAGING**

**Time: 3 hrs**

### **PRACTICAL**

**Marks : 50**

- Make a report on packaging of foods in foodindustry.
- Market survey of packing materialsavailability.
- Preparation of a scrap book with samples of different packagingmaterials.
- Suitability of butter paper, wax paper, cellophane and other papers.
- Measurements of closure caps, wad and theiridentifications.
- Exhibition of food products at productioncentres.
- 3D presentation of primary, secondary and tertiary foodpackaging.