

**B. Sc 3rd SEMESTER
CORE**

FT320C: FOOD SCIENCE & TECHNOLOGY: PRINCIPLES OF FOOD PROCESSING

THEORY (4 CREDITS): 60 HOURS

**CREDITS: THEORY-4, PRACTICAL -2
MAXIMUM MARKS: 60, MINIMUM MARKS: 24**

Objectives/Expected Learning

To acquaint the students about the concepts and technologies of processing and preservation of foods

Unit – 1 (15 HOURS)

- Status of Indian food industry with emphasis on Jammu and Kashmir.
- Classification of foods on basis of shelf life, pH, origin.
- Different types of food spoilage viz. Microbiological, Biochemical and Physical and their effects on food quality.
- Importance of food processing and preservation.

Unit – 2 (15 HOURS)

- Preservation by low temperature: Refrigeration; refrigeration systems. Freezing process- slow and fast freezing, Types of freezers. Storage and thawing of frozen food.
- Preservation by high temperature: Pasteurization, sterilization, canning and aseptic processing.
- Principles of preservation by evaporation, concentration, drying and dehydration.

Unit – 3 (15 HOURS)

- Principle of preservation by sugar and salt.
- Preservation of foods by chemical preservatives. Types of chemical preservatives used in different food products.
- Intermediate moisture food (IMF).
- Fermentation and its types
- Irradiation of foods: Mechanism, doses of irradiation, its effect on food quality.

Unit – 4 (15 HOURS)

- New and unconventional methods of food processing:
 - High pressure processing technology
 - Infra-red (IR) technique
 - Microwave heating
 - Pulse electric field processing
 - Membrane processing

PRACTICALS (2 CREDITS: 60 HOURS)

MAXIMUM MARKS: 30, MINIMUM MARKS: 12

1. Identification of common microbial disorders of foods- Black mold rot, Green mold rot, Yeast growth, Bread mold, Spoilage of canned foods.
2. Alkaline phosphatase test for pasteurized milk
3. Drying of vegetables and calculation of dehydration/rehydration ratio.
4. Preparation of pickles and estimation of acidity.
5. Canning of foods
6. Preparation and preservation of apple jam.
7. Visit to food industries to study pasteurization and sterilization, Refrigeration cycle, preparation of processed products

REFERENCES:

1. Food Processing Technology by P. Fellows.
2. The Technology of Food Preservation by Desrosier.
3. Food Science by N.N. Potter.
4. Introduction to Food Science and Technology by Stewart.
5. Handbook of Food Preservation by M. Shafiur Rahman.