## B.A. (Prog.) with Food Technology (FT) as Non-Major
*Category-III*

**DISCIPLINE SPECIFIC CORE COURSE – DSC-6-FT:**
**BASIC PRESERVATION TECHNOLOGY**

### CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

| Course Title & Code | Credits | Credit distribution of the course | | | Eligibility criteria | Pre-requisite of the course (if any) |
|---|---|---|---|---|---|---|
| | | Lecture | Tutorial | Practical/ Practice | | |
| Basic Preservation Technology | 4 | 3 | 0 | 1 | Class XII | Nil |

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### LEARNING OBJECTIVES:

1. To familiarize the students with food spoilage and their causes.
2. To impart basic knowledge related to principles of food preservation.
3. To introduce the students about applications of food preservation.
4. To develop the skills of processing of chutney, sauces, fruit beverages and pickles.

### LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Describe the purpose and scope of food preservation in Indian economy
2. Explain the different objectives, principles and methods of food preservation
3. Develop safe and hygienic fruits and vegetable-based products like chutneys, sauces, beverages and pickles

### SYLLABUS OF DSC-8-FT

**THEORY**
**(Credits 3: 45 Hours)**

**UNIT I: Scope of Food Preservation (6 Hours)**

- *Unit Description:*This introductory unit focuses on the scope of food preservation and the objectives of food preservation and processing.
- *Subtopics:*
  - Scope of preservation industry in India
  - Objectives of preservation and processing

**UNIT II: Spoilage in Preserved Products (9 Hours)**

- *Unit Description:*This unit will lay emphasis on types of food spoilage in different food products as well as factors affecting food spoilage. This unit will also describe various contaminants that can result in food contamination.

- *Subtopics:*
    - Food spoilage and types
    - Causes of spoilage
    - Spoilage in different food products
    - Food contamination

**UNIT III: Principles and Methods of Preservation (15 Hours)**

- *Unit Description:*This unit will comprise of basic principles and various popular food preservation methods based on these principles.
- *Subtopics:*
    - Basic principles of food preservation
    - Basic Methods of preservation
        - Asepsis
        - Use of low temperature
        - Use of high temperature
        - Removal of moisture
        - Removal of air
        - Use of preservatives
        - Fermentation (Modification of pH)
        - Irradiation
        - Gas preservation
        - Combination of Methods – Hurdle Technology
        - Novel Preservation Techniques (HPP, PEF, Ohmic Heating, Irradiation - nomenclature only)

**UNIT IV: Basic Fruit and Vegetable Preserved Products (15 Hours)**

- *Unit Description:* This unit will describe the preservation methods of different fruits and vegetables based processed products.
- *Subtopics:*
    - Definition, classification, preparation steps and method of preservation of following:
    - Chutneys
    - Sauces
    - Fruit beverages (with special emphasis on pasteurization, use of chemical preservatives, sugar)
    - Pickles

**PRACTICAL**
**(Credits 1: 30 Hours)**

*No. of Students per Practical Class Group: 10-15*

1. Sterilization of bottles.
2. Market survey of preserved fruit and vegetable products
3. Development of an educational aid on food labelling
4. Preparation, bottling, sensory/objective (TSS, pH) evaluation and costing & Labelling of:
    - Sauces (chilli sauce and tomato sauce)

- Ketchup (tomato)
- Chutney (tomato chutney and *imli* chutney)
- Squash (lemon squash/ orange squash, pineapple squash)
- Syrup (rose syrup and almond syrup)
- Fermented beverage (*Kanji*)/ value added beverages
- Pickles (Lime, Mix Vegetable, Chilli)

## ESSENTIAL READINGS (Theory and Practical):


- Rao, E.S., Garg, M. and Barwa, M.S.(2023). *Handbook on Processing and Preservation of Fruits and Vegetables.* 2nd edn. Variety Books Publisher's Distributors, New Delhi
- Frazier, W.C. and Westhoff, D.C. (2014). *Food Microbiology*. Chennai: Tata McGraw Hill Publishing Company Limited.
- Fellows, P.J. (2022). *Food Processing Technology Principles and Practice* (5th ed.). Woodhead Publishing Series in Food Science, Technology and Nutrition. https://doi.org/10.1016/C2019-0-04416-0.
- Rahman, M.S. (Ed.). (2020). *Handbook of Food Preservation* (3rd ed.). CRC Press. https://doi.org/10.1201/9780429091483
- Suri, S. & Malhotra, A. (2014). *Food Science Nutrition and Safety*. Delhi: Pearson India Ltd.
- Sivasankar, B. (2002). *Food Quality, in Food Processing and Preservation*. Prentice-Hall of India Private Limited, New Delhi.
- Srivastava, S.S. (2006). *Phal Parirakshan*. Lucknow: Kitab Mahal.


## SUGGESTED READINGS:


- Potter, N.N., and Hotchkiss, J.H. (2012). *Food Science* (5th ed.). Springer New York, NY. XV, 608. https://doi.org/10.1007/978-1-4615-4985-7.
- Lal, G., Siddhapa, G.S. and Tandon, G.L. (2009). *Preservation of Fruits and Vegetables*. New Delhi: Indian Council of Agriculture Research.
- Subbalakshmi, G., and Udipi, S.A. (2007). *Food Processing and Preservation*. Delhi: New Age International Publishers.
- Khurdia, D.S. (1995). *Preservation of fruits and vegetables*. New Delhi: Indian Council of Agriculture Research.


**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**