DSC 05 : TECHNOLOGY OF FOOD PRESERVATION

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		
TECHNOLOGY OF FOOD PRESERVATION	**4**	**3**	0	**1**	XII with PCM/PCB	NIL

Learning Objectives

The Learning Objectives of this course are as follows:

- To learn science behind various preservation/processing technologies.
- Technological application of concepts on conventional Indian foods.

Learning outcomes

The Learning Outcomes of this course are as follows:

- Understanding of the concept of different processing and preservation technologies
- Appreciate significance of various preservation methods used in food industries.

SYLLABUS OF DSC-05

Unit1: Introduction to Technology of Food Preservation (6 Hours)
Introduction to historical evolution to food preservation techniques- Conventional to recent technologies Classification of foods based on pH, concept of shelf life, perishable foods, semi perishable foods, shelf stable foods.

Unit2:Food Preservation by Low temperature (14 Hours)
Introduction to refrigeration, chilling, freezing as a means of preservation, cold storage
Principle of freezing, freezing curve, changes occurring during freezing, types of freezing i.e. slow freezing, quick freezing, Introduction to thawing, changes during thawing and its effect on food

Unit3: Food Preservation by Thermal Processing and Irradiation (10 Hours)
Introduction to Thermal Processing- Blanching, pasteurization, sterilization, commercial sterilization. Introduction, units of radiation, concept of cold sterilization, kinds of ionizing radiations, application in food industry.

Unit4: Food Preservation by Moisture control (15 Hours)
Introduction to Drying and Dehydration -Drying as a means of preservation, differences between sun drying and dehydration (i.e. mechanical drying), normal drying curve, heat and mass transfer, factors affecting rate of drying and its application in food industry.
Introduction to Evaporation as a means of preservation – Definition, factors affecting evaporation, and its application in food industry.

Practical Exercises: 30 Hours

The learners are required to:

- To study methods of sampling.
- To study the concept of shelf life of different foods.
- To perform blanching of plant foods.
- To study the concept of sterilization
- To perform pasteurization of fluids- juices/ milk/ squashes etc using different methods.
- To determine the pH of different foods.
- To evaluate the quality characteristics of foods preserved by solar drying/ dehydration/ freezing.

Essential/recommended readings

- Potter, N. N., & Hotchkiss, J. H. (2012). Food Science. Springer Science & Business Media.
- Fellows, P. J. (2009). Food Processing Technology: Principles and Practice. Elsevier.
- Bawa. A.S., Chauhan, O.P, Raju. P.S. (2013) ed. Food Science. New India Publishing agency.
- Stewart, G.F., & Amerine, M.A. (2012). Introduction to Food Science and Technology.Elsevier, 2nd Edition.
- Rao, E.S. (2019) Fundamentals of Food Technology and Preservation, Variety Books, New Delhi.
- Frazier, W.C. & West Hoff, D.C. 2004. Food Microbiology. TMH Publication, New Delhi,.
- Rao, D.G. 2010. Fundamentals of Food Engineering, PHI Learning Pvt Ltd, New Delhi,

- **Note: Learners are advised to use the latest edition of readings.**

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