

## FROZEN DESSERT 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		
<b>Frozen Dessert Technology</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>Class XII</b>	<b>NIL</b>

### LEARNING OBJECTIVES

This course will help learners be equipped with the skills of developing, packaging, innovating and marketing of frozen desserts like ice creams, sorbets, ice popsicles, yoghurts, traditional *kulfi*, etc. During the past decade, the frozen food industry has grown, with an array of innovations in ice-creams, frozen yogurt, gelato and traditional desserts such as *shrikhand*. There is vast scope for the development of lower-fat, reduced-sugar products which may lead to increased sales. This course will equip the students with knowledge and skills necessary to work in the frozen food industry.

The learning objectives of the course are:

- To learn basic concepts on processing, distribution and storage of frozen desserts
- To develop the skill of preparing various types of frozen desserts

### LEARNING OUTCOMES

After studying this course, the student will be able to:

- Prepare/ process/pack/handle/sell different types of frozen desserts
- Work in frozen food industry or start own business – manufacturing, distribution and retail.

### SKILL DEVELOPMENT AND JOB OPPORTUNITIES’:

Employment Opportunities:

- Apprentice, supervisor, processor in frozen food manufacturing units/ distribution and retail outlets
- Entrepreneurship in frozen food industry
- Food Stylist / Designer for frozen desserts

### SYLLABUS

**Credits: 2**

**Total lectures (45): 45 Hours/ 15 weeks**

**Theory: 30%, Credit – 1 (Lectures – 15)**

**Practical/Field work/Hands on learning: 70%, Credit – 1 (Lectures – 30)**

## **THEORY**

### **Unit 1: Food Freezing**

**(7 hours)**

**Description:** This unit will give an introduction to the concept of frozen foods/industry, their properties. It will also include the various equipments, freezing systems/methods which can be used to process, store and maintain cold chain during distribution.

#### ***Subtopics:***

- Background, description and properties of frozen foods
- Freezing time
- Equipment and Freezing systems (direct and indirect contact)
- Act, regulations and standards

### **Unit 2: Frozen Desserts**

**(8 hours)**

**Description:** This unit will focus on salient types of frozen desserts; both milk based as well as water based. It will include the composition, physical properties, processing, storage, freezing, common defects, packaging.

#### ***Subtopics:***

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- Definitions and important terminology
- Ice-cream – composition, physical properties, processing, storage, freezing, common defects, packaging
- Ice based sherbets, sorbets, ice candies, popsicles
- Other frozen desserts – frozen yogurt, *shrikhnad*, mellorine, parevine, ice-cream sandwiches
- Future trends (novelties)

## **PRACTICALS**

1. Market survey of frozen desserts and accessories and basics of working in food lab. **(2 hours)**
2. Preparation, packaging, labeling and sensory evaluation of vanilla ice cream **(4 hours)**
3. Preparation, packaging, labeling and sensory evaluation of any fruit based ice cream (mango, strawberry, pineapple etc.) **(4 hours)**
4. Preparation, packaging, labeling and sensory evaluation of Kulfi or nuts and fruit ice cream **(4 hours)**
5. Preparation, packaging, labeling and sensory evaluation of ice cream with egg or gelato or frozen custard **(4 hours)**
6. Preparation, packaging, labeling and sensory evaluation of ice cream sandwich or novelties **(4 hours)**
7. Preparation, packaging, labeling and sensory evaluation of ice-lolly/ popsicles/ ice-candies **(4 hours)**
8. Preparation, packaging, labeling and sensory evaluation of *Shrikhand* or frozen yogurt **(4 hours)**

## ESSENTIAL READINGS

- Raina, U., Kashyap, S., Narula, V., Thomas, S., Suvira, Vir, S., & Chopra, S. (2005). Basic Food Preparation – A Complete Manual. Delhi: OrientLongman.
- Khanna, K., Gupta, S., Seth, R., Mahana, R., & Rekhi, T. (2004). The Art and Science of Cooking. Delhi: Phoenix Publishing House Private Limited.
- Migoya, MJ. (2008). Frozen Desserts. First Edition. John Wiley and Sons Inc.
- Food Safety and Standards Authority of India (FSSAI). (2011). Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011. Compendium on Food Additives Regulations. Elite Publishers. Pgs. 877.
- Food Safety and Standards Authority of India (FSSAI). (2019). FSSAI regulations on frozen desserts. Website: [https://www.fssai.gov.in/upload/media/FSSAI\\_News\\_Ice\\_FNB\\_22\\_05\\_2019.pdf](https://www.fssai.gov.in/upload/media/FSSAI_News_Ice_FNB_22_05_2019.pdf).

## SUGGESTED READINGS:

- Clarke, C. (2004). The Science of Ice Cream. The Royal Society of Chemists.
- De, S. (2001). Outlines of Dairy Technology. First Edition. Oxford Publishing House.
- Francis, F.J. (2010). Encyclopedia of Food Science and Technology. Volume 2. Second Edition. John Wiley & Sons.
- Goff, H.D. & Hartel, R.W. (2008). Ice Cream. Seventh Edition. Springer.
- Himadri, P. (2010). Handbook on Frozen Food Processing and Freeze Drying Technology. First Edition. Engineers India Research Institute.
- Jana, A., Pinto, S. & Moorthy, P.R.S. (2016). Ice Cream and Frozen Desserts. AgriMoon.com Publishing. Website: <https://www.agrimoon.com/wp-content/uploads/Ice-cream-Frozen-Dessrt.pdf>.
- Rorer, S.T. (2005). Ice Creams, Water Ices, Frozen Puddings Together with Refreshments for All Social Affairs. First Edition. Project Gutenberg. Website: <https://www.gutenberg.org/ebooks/8501>.
- Stogo, M. (2018). Ice Cream and Frozen Desserts: A Commercial Guide to Production and Marketing. John Wiley & Sons.
- Tharp, B.W. & Young, L.S. (2012). Tharp and Young on Ice Cream: An Encyclopedic Guide to Ice Cream Science and Technology. First Edition. DEStech Publications Inc.
- Weinstein, B. (2010). The Ultimate Ice Cream Book. First Edition. Perfect Bound Publishing House. Website: <https://www.pdfdrive.com/the-ultimate-ice-cream-book-over-500-ice-creams-sorbets-granitas-drinks-and-more-e184459836.html>.

## Examination scheme and mode:

Evaluation scheme and mode will be as per the guidelines notified by the University of Delhi.