

MINIMAL FOOD PROCESSING

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		
Minimal Food Processing	2	1	0	1	XII (PCM/PCB)	NIL

Learning Objectives

- To provide the best combination of health, nutrition and convenience based on minimal food processing
- To impart skills in food processing for extending the shelf life with minimal processing that results in minimum changes to sensory characteristics and nutritional qualities, yet imparting convenience to the consumer.
- To make students aware of the various novel technologies being developed and used for minimal processing across the world.

Learning Outcomes

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

- Have skills and knowledge of methods of preservation by minimal processing of food.
- Do minimal processing of different food samples.

Job/Employment Opportunities:

- Students can establish his/her start-up specialized in minimal food processing of foods.
- Students can help in Research and Development in food industries to explore various novel technologies for minimal processing.
- Students can either collaborate or join with any Food Industry and help in developing various thermal and non-thermal techniques in food processing.

Syllabus

THEORY

Total Lecture (Nos): 15 Hours

Unit 1: Basic minimal processing

(8 Hours)

Introduction and importance of minimal processing, Preparation and pre-treatments, Minimal processing of foods by thermal, refrigeration and freezing methods, MAP (Modified Atmosphere Packaging) and CAP (Controlled Atmosphere Packaging). Physiological responses and biochemical changes during minimal processing of fruits and vegetables, Meat, Fish, poultry and Dairy products. Role of minimal processing in economic creation.

Unit 2: Advanced technologies in minimal processing of foods**(7 Hours)**

Principle and applications of; irradiation, pulsed electric field processing, high pressure processing, pulsed light, ultrasound, ohmic heating, sous vide.

PRACTICALS**(30 Hours)**

1. To study basic hygiene and sanitation requirements for minimal processing
2. Preparation and pre-treatment method for minimal processing of fruits and vegetables.
3. Minimal processing of Meat products.
4. Minimal Processing of fish and Poultry.
5. Minimal processing by Vacuum/ MAP/CAP/ edible coating.
6. Minimal Processing of Dairy Products.
7. To study the shelf life and quality characteristics of minimally processed foods available in the market
8. To study the effect of packaging material on shelf life of different minimally processed foods.
9. To determine the cost of minimally processed food.

Essential Readings:

- Fellows, P. J. (2009). Food processing technology: principles and practice. Elsevier
- Rahman, M. S. (Ed.). (2007). *Handbook of food preservation*. CRC press.
- Tewari, G., & Juneja, V. (Eds.). (2008). *Advances in thermal and non-thermal food preservation*. John Wiley & Sons.

Suggestive Readings:

- Barbosa-Canovas, G. V., Tapia, M. S., & Cano, M. P. (Eds.). (2004). *Novel food processing technologies*. CRC press.
- Bansal, V., Siddiqui, M. W., & Rahman, M. S. (2015). Minimally processed foods: overview. *Minimally processed foods*, 1-15.

Examination scheme and mode:

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