

# 21HORT381 POST-HARVEST MANAGEMENT AND VALUE ADDITION OF FRUITS AND VEGETABLES

Hours Per Week :

L	T	P	C
1	-	2	2

Total Hours :

L	T	P
15	-	30

## COURSE DESCRIPTION AND OBJECTIVES:

Aim of this course is to provide students knowledge about principles of postharvest processing of horticultural produce and value addition through processing, packaging, storage and marketing

## COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes
1	Able to know importance and use of processing and value addition of fruits and vegetables
2	Acquire knowledge on post-harvest management of fruits and vegetables without affecting quality
3	Acquaint with options for value addition of fruits and vegetables by processing them into products such as jam, jelly, candy and squash along with knowledge about certification, Accrediation and quality control and preservation processes

## SKILLS:

- ✓ *Assess the quality of fruits.*
- ✓ *Develop value added products by the application of processing concept in fruits and vegetables.*



Source:

<https://smeventure.com/credit-linked-subsidy-for-micro-food-processing-units-under-pm-fme-scheme/>

**ACTIVITIES:**

- o *Demonstration of chilling and freezing injury in vegetables and fruits*
- o *Extraction and preservation of pulps and juices*
- o *Preparation of jam, Preparation of Jelly*
- o *Visit to processing unit/ industry*

**UNIT - 1**

**Introduction:** Importance of fruits and vegetables, extent and possible causes of post-harvest losses

**UNIT - 2**

**Factors:** Pre-harvest factors affecting postharvest quality, maturity, ripening and changes occurring during ripening; Respiration and factors affecting respiration rate; Role of ethylene

**UNIT - 3**

**Post Harvest Diseases and Storage:** Post harvest disease and disorders; Heat, chilling and freezing injury; Harvesting and field handling; Storage (ZECC, cold storage, CA, MA, and hypobaric)

**UNIT - 4**

**Principles and Method of Preservation:** Value addition concept, principles and methods of preservation, intermediate moisture food- jam, jelly, marmalade, preserve, candy – concepts and standards; fermented and non-fermented beverages. Tomato products- concepts and standards

**UNIT - 5**

**Drying, Canning and Packaging:** Drying /dehydration of fruits and vegetables – concept and methods, osmotic drying. Canning – concepts and standards, packaging of products

**LABORATORY EXPERIMENTS****LIST OF EXPERIMENTS**

1. Applications of different types of packaging containers for shelf life extension
2. Effect of temperature on shelf life and quality of produce
3. Demonstration of chilling and freezing injury in vegetables and fruits
4. Extraction and preservation of pulps and juices
5. Preparation of jam
6. Preparation of jelly
7. Preparation of RTS
8. Preparation of nectar
9. Preparation of squash
10. Preparation of osmotically dried products
11. Preparation of fruit bar and candy
12. Preparation of tomato sauce and ketchup
13. Preparation of canned products
14. Quality evaluation of products - (physic-chemical and sensory)
15. Visit to processing unit / industry

**REFERENCES:**

1. Rathore, N.S., Mathur, G.K., Chasta, S.S. 2012. Post-harvest Management and Processing of Fruits and Vegetables. ICAR, New Delhi
2. Srivastava, R.P. and Sanjeev Kumar. 2002. Fruit and Vegetable Preservation: Principles and Practices. International Book Distribution Company, Lucknow
3. Giridharilal, G. S., Siddappa and Tondon, G.L. 2007. Preservation of Fruits and Vegetables. ICAR, New Delhi
4. Mitra, S.K. 2005. Post Harvest Physiology and Storage of Tropical and Subtropical Fruits. CABI Publishers, Kolkatta