20FT020 - FRUITS AND VEGETABLE PROCESSING

L	T	P	C
3	-	-	3

Hours Per Week :

L	T	P
45	15	-

Total Hours

WA/RA	SSH/HSH	CS	SA	S	BS
15	**30**	**-**	**5**	**5**	**-**

Course Description and Objectives:

This course deals with technologies related to handling, processing, and storage of 'fruits and vegetables'. The objective of this course is to impart skill and knowledge required to apply the principles and concepts behind 'fruit and vegetable' processing including post-harvest handling, specific processing techniques, quality analysis and stabilizing shelf life of the products.

Course Outcomes:

Upon successful completion of this course student should be able to:

- Gain knowledge on post-harvest processing techniques of fruits and vegetables
- Know about novel preservation techniques to improve the shelf life of seasonal fruits and vegetables
- Know the storage and quality evaluation of fruits and vegetables

SKILLS

- ✓ Identify the spoilage in fruits and vegetables and state the reason for the spoilage following safety precautions.
- ✓ Explain and understand the canning process of fruits and vegetables and Identify defects by physical observation & its causes in canned foods and explain food safety standards.
- ✓ Suggest suitable processing and storage conditions for fruits and vegetables

UNIT - I

INTRODUCTION TO FRUITS AND VEGETABLES PROCESSING: Current status of production and processing of fruits and vegetables, Importance of post-harvest technology of fruits and vegetables, structure, cellular components, composition and nutritive value of fruits and vegetables, Pre- and post-harvest changes, ripening, spoilage of fruits and vegetables, processing characteristics of fruits and vegetables.

UNIT - II

POST-HARVEST PROCESSING: Harvesting and washing, pre cooling, Physical and chemical treatment to increase the shelf-life, blanching, minimal processing of fruits and vegetables, de-bittering and detoxification of fruits and vegetables in processing, commercial canning of fruits and vegetables, Spoilage of canned foods, Detection and control.

UNIT - III

PROCESSING AND PRESERVATION OF FRUITS AND VEGETABLES: Drying and Dehydration of fruits and vegetables, methods, osmotic dehydration, foam mat drying, freeze drying; Food additives: Use in fresh cut fruit and vegetable preservation; Preparation of juice, Syrups, Squashes, Cordials, and nectars, Vinegar production and its uses.

UNIT - IV

STORAGE CONDITIONS: Cold storage of fruits and vegetables, modified atmosphere packaging and controlled atmosphere packaging of fruits and vegetables, gas composition, other packaging technology for fruits and vegetables preservations.

UNIT - V

NOVEL PROCESSING METHODS AND QUALITY: microwave heating, applications, radiation preservation of fruits and vegetables, irradiation sources, Intermediate moisture foods, Ohmic heating principles, high pressure processing of fruits and vegetables products, sensory

evaluation of fruit and vegetable products, general principles of quality standards and control, FPQ, quality attributes.

ACTIVITY:

o Report on nutritional composition, processing and storage considerations for a particular fruit or vegetable product

TEXT BOOKS:

1. Srivastava,R.P., and Sanjeev Kumar: Fruit and vegetable preservation; principles and practices : International Book Distributing Co., Lucknow. 1998.

2. Lal, G., Siddappa, G. and Tondon G.L.: Preservation of Fruits and Vegetables, Indian Council of Agricultural Research, New Delhi. 1986.

REFERENCE BOOK:

1. Dauthy, M.E.: Fruit and Vegetable Processing. International Book Distributing Co. Lucknow, India. (1997).

2. Hamson, L.P: Commercial Processing of Vegetables. Noyes Data Corporation, New Jersey. (1975)