

16FT304 FRUITS AND VEGETABLES PROCESSING

Hours Per Week :

L	T	P	C
3	-	2	4

Total Hours :

L	T	P	WA/RA	SSH/HSH	CS	SA	S	BS
45	-	30	15	40	-	-	10	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 technologies, preparing, quality analysis and stabilizing shelf life of fruit and vegetable based products

Course Outcomes:

The student will be able to:

- gain knowledge on processing of fruits and vegetables.
- know about preservation techniques to improve the shelf life of seasonal fruits.
- understand the technology behind canning of fruits and vegetable products.
- discuss the factors affecting the shelf life of minimally processed foods.

SKILLS:

- ✓ *Specify physiological, physical, chemical and nutritional properties of fruits and vegetables.*
- ✓ *Identify and overcome undesirable changes which can occur during fruits and vegetables processing.*
- ✓ *Identify and predict the post-harvest handling factors affecting the shelf life of fruits and vegetables.*
- ✓ *Suggest suitable processing and storage conditions for fruit and vegetable products.*

ACTIVITIES:

- *Report on nutritional composition, processing and storage considerations for a particular fruit / vegetable product.*

UNIT - 1**L-9**

FRUITS AND VEGETABLES: Current status of production and processing of fruits and vegetables. Chemical composition, Pre and post-harvest changes, Maturity standards for storage, Desirable characteristics of fruits and vegetables of processing.

UNIT - 2**L-9**

POST-HARVEST HANDLING OF FRESH FRUITS AND VEGETABLES: Role of plants growth regulators in relation to storage, Physical and chemical treatment to increase the shelf-life, Conditions for transportation and storage, Disease and injuries during marketing, Biosynthesis of flavours, Biosynthesis of flavors, Flavor characteristics.

UNIT - 3**L-9**

STORAGE OF FRESH FRUITS AND VEGETABLES: Containers, Tin, Glass and other packaging materials used in fruits and vegetables preservations. Canning and bottling, Effect of canning and bottling on nutritive value, Spoilage of canned foods, Detection and control.

UNIT - 4**L-9**

PROCESSING OF FRUITS AND VEGETABLE: Preparation of juice, Syrups, Squashes, Cordials, and nectars, Concentrations and drying of juice, Packaging, Storage, Concentrations and powders, Fortified soft drinks, Tomato product and its quality control, Vinegar production and its uses and quality control. Pickles and chutneys Preservation by freezing, General methods for freezing of fruits and vegetables, Problem relating to storage of frozen products, Standards for frozen food products.

UNIT - 5**L-9**

MINIMALLY PROCESSED FRUITS AND VEGETABLES: Factors affecting shelf life and the quality of minimally processed fruits and vegetables, Physiology and biochemistry of fresh cut. Food additives: Use in fresh cut fruit and vegetable preservation.

LABORATORY EXPERIMENTS**LIST OF EXPERIMENTS**

Total Hours: 30

1. Experiment on drying kinetics.
2. Determination of Sugar acid ratio in fruits and vegetables.
3. Determination of pectin content in fruits and vegetables.
4. Preparation of Jam and determination of TSS and Viscosity.
5. Preparation of Jelly and Marmalade and determination of TSS and Viscosity.
6. Testing the adequacy of blanching.
7. Preparation of pickles, chutneys and their quality evaluation.
8. Preparation of tomato products and their quality evaluation.
9. Spray drying of fruit juice.