

## 17FT017 PLANTATION CROPS, SPICES & CONDIMENT TECHNOLOGY

Hours Per Week :

L	T	P	C
3	1	-	4

Total Hours :

L	T	P	WARA	SSH/HS	CS	SA	S	BS
45	15	-	15	30	-	5	5	-

### Course Description and Objectives:

This course deals with processing, packaging and storage of different types of spices and condiments. The objective of this course is to make students aware of various techniques involved in processing of spices and condiments, their value addition.

### Course Outcomes:

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

- Understand scope, processing and production of spices and plantation crops
- Know about processing methods for value addition of spices and condiments
- Discuss standards, adulteration and packaging of spices and condiments

### SKILLS:

- ✓ Analyze chemical composition of spices and plantation crops
- ✓ Suggest a technology for extraction of essential oils from different spices
- ✓ Select suitable packaging material for spice products
- ✓ Identify adulteration in spice and plantation crops

## UNIT – I

Plantation Crops - Description of various types of Plantation crops, viz., coconut, arecanut, coffee, tea, cocoa etc. Processing and preservation methods. Value-added products shelf- stable products viz., coconut water bottling, desiccated coconut powder, coffee concentrate, instant coffee powder, instant tea powder, cocoa processing. Leafy vegetables - Description of various types of leafy vegetables, viz., hibiscus, curry leaves, coriander leaves, etc. Their composition, nutritive value, health benefits. Preservation methods and packaging techniques.

## UNIT – II

Spices & Condiments - Description of various types of spices and condiments, their composition, functional properties, flavouring agents. Nutritive value of spices and their health benefits. Intermediate Moisture Products – Intermediate Moisture Products viz., ginger paste, ginger –garlic paste, tamarind paste, tamarind concentrate. Their importance in culinary preparations. Flavour retention and packaging methods.

## UNIT – III

Spice Powders & Curry Powders: Their importance in culinary preparations, their preparation methods, grinding and packaging methods for spice powders like chilli powder, turmeric powder, ginger powder, garlic powder; and Masala Powders for chicken masala, meat masala, biryani masala, chat masala etc. Importance of Cryogenic grinding of spices.

Spice Oils – Concept and importance of spice oils from spices like and condiments like clove, cardamom, cinnamum etc. Their application in food processing, and extraction methods of spice oils by various techniques, viz., solvent extraction, steam distillation etc.

## UNIT – IV

Extraction of Oleoresins – Concept and importance of oleoresins in food processing, processing of spices like chilli, turmeric, pepper, ginger etc. for solvent extraction of Oleoresins technology, desolventization methods, regulatory and statutory requirements for oleoresin processing. Extraction of Natural Food Colours - Extraction of Natural Food colours from paprika, turmeric, blue grapes, beet root etc. Their importance in food processing.

## UNIT – V

Herbs –Description of various types of herbs, viz., Basil, Chives, Cilantro, Dill, Coriander, Mint, Oregano, Parsely, Chives, Borage and Avocada leaves, Rose marry, Saga, Tarragon, Thyme, Winter savory and bolbo leaves, Papalo, Pipicha and Safflower. Their nutritive value & health benefits, their processing and Post harvest handling. Packaging methods for processed products.

### TEXT BOOKS/REFERENCE BOOKS:

1. Spices: Morphology, History, Chemistry, J W Parry, Chemical Publishing Co., New York (1969)
2. D. K. Salunkhe and S. S. Kadam, "Handbook of Fruit Science and Technology: Production, Composition, Storage, and Processing", 1st edition, CRC Press, 1995.
3. N. K. Jain, "Global Advances in Tea Science", 1st edition, Aravali Books International, 1999
4. M. N. Clifford and K. C. Willson, "Coffee: Botany, Biochemistry and Production of Beans and Beverage", 1st edition, AVI publishing Co., 1985

### ACTIVITIES:

- o Report on various adulterants used in spices and plantation products
- o Flow chart of processing of local value added products of spices and condiments