

## **CHE 3218      FOOD PROCESSING AND PRESERVATION      2credits/3 hours**

This course aims at enabling the students to realize the scope of food processing industry in India. It deals with various food additives, flavours, food colours and role of enzymes in food industry. This course includes the various food processing, preservation techniques and canning of fruits and vegetables.

### **Unit-1**

Introduction – history of preservation and canning industry- scope of fruit and vegetable preservation in India - product mix-availability - man power-capital- lack of awareness-marketing facilities – transport facilities-availability of containers – publicity -role of Government.

**Enzymes in the food industry**- important properties of enzymes in fruit and vegetable technology – enzymes used in the food industry- immobilized enzymes.

### **Unit-II**

**Food additives** - functions and uses of food additives -classification of food additives -B.V.O - substances prohibited in foods-additives to be used with caution

**Flavours** - flavour compounds–flavonoids–terpenoids - sulfur compounds - other volatile components - types of flavor - developed flavor - processed flavor - added flavour- Texturing agents – gelatin- Sweeteners- artificial sweeteners

### **Unit-III**

#### **Food colors**

**Natural coloring matters** –chlorophylls–carotenoids–anthoxanthines–flavonoids–anthocyanins – tannins - quinines and xanthenes- betalains

**Synthetic colors** - banned colors

**Spoilage** - Microbial spoilage - bacteria, yeast, moulds-enzymatic spoilage - spoilage by insects, parasites and rodents - characteristics and storage conditions of food.

### **Unit-IV**

**Principles and methods of preservation** –Asepsis - preservation by high temperature–pasteurization – sterilization - Aseptic canning – preservation by low temperature - chemicals, sulphur dioxide, benzoic acid – drying – filtration – carbonation – sugar – fermentation – salt – acids - oils and spices – antibiotics - irradiation.

**Canning and bottling of fruits and vegetables** - principles and process of canning -different methods - canning of fruits - canning and bottling of vegetables - canning of curried vegetables - specific requirements for canning of fruits and tomatoes.

### **Unit-V**

**Fruits and vegetables drying/dehydration-techniques**-advantages of dehydration over sundrying

**Freezing of fruits and vegetables** - methods of freezing - sharp freezing - quick freezing - cryogenic freezing - dehydro-freeze drying

### **Quality control in food processing industry**

F.P.O specification - storage life - permissible limits of preservatives – classification and their ill effects of food toxins.

### **References:**

R. P. Srivatsava, Sanjeev Kumar, Fruits and vegetable preservation, International book distributing company, 2006.

L. H. Meyer, Food Chemistry, CBS Publications & Distributors, 2004.

H.K.Chopra, P.S.Panesar, Food Chemistry, Narosa Publishing House Pvt Ltd, 2010