Semester I

FT 101

Principles of Food Processing

Unit I

Introduction: Definition and Scope of Food Science And Technology, Historical Development of Food Processing And Preservation, General Principles of food preservation.

Preservation by heating: Principles of the method, thermal resistance of microorganism and enzyme

Baking: Milling, General principle of Baking, Various type of Baked product

Unit II

Radiation: Source of Radiations, Mode of Action, Effect on Microorganism and Different Nutrients, Dose requirements for radiation preservation of food

Microwave heating: Principles and application in Food Processing

Unit III

Refrigeration and Freezing Preservation: Refrigeration and storage of fresh food, Major requirement of a refrigeration plant, Controlled Atmospheric Storage, Refrigerated Storage of various food, freezing point of selected food, influence of freezing and freezing rate of quality of the food product, Method of freezing, storage and thawing of frozen food

Unit IV

Chemical Preservation: Preservation of Food by use of Sugar, Salt, Chemicals, Antibiotics and by Smoking

Concentration: Application in Food Industry, Processes and Equipment for Manufacture of various concentrated foods and their keeping quality

Fermentation: Application in Preservation of food, Pickling, Curing etc

Unit V

FT 102

Introductory Food Chemistry

Unit I
Non Calorific Sweeteners: Artificial and Natural

Unit II
Proteins: Classification, Structure, Properties, Purification and Denaturation of Proteins. The nature of interaction in Protein derived from Milk, Egg Protein, Meat Protein, Fish Muscle Protein, Oilseed Protein and Cereal Proteins. Metabolic Antagonist and Allergens associated with food proteins. Modified Protein.

Unit III
Vitamins: Effect of various Processing treatments and fortification of foods.
Minerals: Effect of various Processing treatments.

Unit IV
Biological Changes in Food:
Plant Pigments and their role in Food Industry: Carotenes, Xanthophylls, Chlorophyll, Bitter Substances and Tannins.
Enzymes: Nature, Classification and Properties of Enzymes and its activity in different food systems, Food enzyme technology, Flavor production by enzymes.

Unit V
Browning Reactions in Food: Enzymatic and Non Enzymatic browning in foods of Vegetable and animal origin during storage and processing of foods. Single Cell Protein.
Water: Chemistry, Role in Food storage, Water Activity and growth of Microorganisms, Water Standards and Analysis, Physical, Chemical and Microbiological Characteristics of Water Analysis.
Food Biochemistry and Nutrition

Unit I
Carbohydrates: Digestion, Metabolism, Food Sources, Deficiency, Metabolic Defects such as Diabetes associated with Carbohydrates.

Fats: Digestion, Nutritive Functions, Dietary Requirements. Metabolism. Food Sources, Effects of Excess and Deficiency: Obesity, Cardiovascular Diseases. Importance of Lipoproteins.

Unit II
Protein: Digestion, Metabolism., Deficiency Symptoms, Prevention and Cure

Unit III
Fat Soluble Vitamins: Salient Features, Requirements, Food Sources. Effects of Excess and Deficiency.
Water Soluble Vitamins: Salient Features, Requirements, Food Sources, Effects of Deficiency.
Minerals: Salient Features, Requirements, Food Sources, Effect of Excess (if any), Deficiency Factors affecting Utilization

Unit IV
Water and Electrolytes: Salient Features, Function, Food Sources, Effect of Excess (if any), Deficiency and Hypertension, Sodium and Potassium balance
Nutritional aspects of Carbohydrates, proteins, fats and vitamins and their application, Formulation of Functional foods and Neutraceuticals.

Unit V
Energy Metabolism: Basal metabolic requirements and Activity, SDA-specific dynamic action of food, Respiratory Quotient of food, Caloric requirement per day of Human
Recommended Dietary Allowances: Concept of Balanced Diet, Menu Planning in Different ages and diseases
Research Documentation: Methodology, Statistics and Computer Application

Unit I
Scientific Approach to Research: Meaning, Significance and Types of Research Studies.
Sampling Design: Census Vs Sample Survey. Steps, Types

Unit II
Methods of Data Collection: Observation, Interview, Questionnaire, Case Study, Focus group Discussion
Measurements: Nature of Measurements, Types of Measurement scale, Graphical Presentation of Data

Unit III
Measures of Central Tendency: Computation of Mean, Median and Mode and Their Uses
Measures of Variability: Computation of Mean Deviations, Quartile Deviation and Standard Deviation and Their Uses.
Correlation: Meaning, Pearson’s Technique of Correlation.

Unit IV
Chi Square:
Tests of Significance of Difference between Means t-test
Sensory Evaluation: Selection of Panel of Judges, Sensory Characteristics

Unit V
Computer Applications: Use of Computers for preparing and presenting documents, Appropriate Statistical and Other relevant packages, Internet. Use of MS Office. Library Documentation and Scientific Literature Searching