FOOD CHEMISTRY AND NUTRITION

Subject Code :- FTC304

Full Marks -100 (80+20)

L T P

3 - 2

RATIONALE

Diploma holders in food technology are required to test the food products in the laboratories and should have theoretical as well as practical understanding of food chemistry and nutrition, which relates to different aspects of food chemistry and nutrients such as water, carbohydrates, fats, protein, minerals, vitamins, food pigments, enzymes etc. Hence the subject is included for developing these competencies.

DETAILED CONTENTS

1. Importance of food. Scope of food chemistry (01 hrs)

2. Introduction to colloidal chemistry and its role in food production (03 hrs)

3. Introduction to different food groups (cereals & pulses, meat & fish & poultry, milk & milk products, fats & oils, vegetables & fruits, sugar & jaggery, spices and

   condiments & their classification and importance (03 hrs)

4. Water (05 hrs)

   Structure of water molecule, types and properties of water, water activity and its

   Importance

5. Carbohydrates (05 hrs)

   Basic composition, classification, sources, nutritional and industrial importance

6. Proteins (05 hrs)

   Basic composition, classification, sources, functional, nutritional and industrial

   Importance

7. Fats (05 hrs)

Basic composition, classification, sources, nutritional and industrial importance

8. Vitamins and Minerals (05 hrs)

Function and sources of minerals-calcium, iodine, zinc, iron, floride, fat soluble and water-soluble vitamins, effect of processing and storage on vitamins

9. Deficiency disorders and requirement of different nutrients (Calcium, Iodine, vitamin-A, iron, protein and calorie or energy. (02 hrs)

10. Concept of Balanced Diet. (02 hrs)

11. Food Pigments (05 hrs)

Importance and plant sources of pigments (Chlorophyll, Anthocyanin, carotenoids, lycopene)

12. Enzymes (05 hrs)

Definitions, mode of action, importance sources, nomenclature and classification

13. Food additives – definition and important types (02 hrs)

FOOD CHEMISTRY AND NUTRITION LAB

Subject Code:- FTC309

LIST OF PRACTICALS

1. Determination of moisture in a given food sample

2. Determination of protein in a given food sample

3. Determination of carbohydrates in a given food sample

4. Determination of ash in a given food sample

5. Determination of fat in a given food sample

6. Determination of pH of a given sample

7. Determination of acidity of given food sample/beverage

8. Determination of total non reducing and reducing sugars

9. Determination of vitamin C in given food sample

10. Determination of diastase enzyme activity

11. Identification of pigments in a given food sample

12. Effect of Baking Soda in CO_2 production

13. Detection of Saccharine in beverages

14. Visit to hospital/slide show on various nutritional deficiency disorders

RECOMMENDED BOOKS

1. Essentials of Food and Nutrition by Swaminathan Vol. I and II, Health Kalyani publishers, New Delhi
2. Food Chemistry by LH Meyer, Van Nostrand Reinhold Co. New York **...**
3. Hand book of Analysis of Fruits and Vegetables by S. Ranganna, Tata Me Graw-Hill. Publishing Company, New Delhi
4. Biochemistry by Mohinder Singh, Sejwal Publisher. New Delhi
5. Introduction to Biochemistry by Braverman, Elsevier Scientific Publishing
6. Food Chemistry by Linhinger, CBS Publishers, Delhi ...
7. Food Chemistry by FANNEMA,
8. Hand Book of Food & Nutrition by Swaminathan, Narosa Publishing House, New Delhi
9. A Text Book of BiochemistryA.V.S.S. Rama Rao, U B S Publishers, New Delhi
10. A Text Book of BiochemistryA.K.Berry, Narosa Publishing House
11. Nutrition & Dietetics by Joshi, Tata McGraw-Hill Education, New Delhi
12. Clinical Dietetics and Nutrition by Antia & Abraham, Oxford University Press, USA
13. Chemical Changes in Food During Processing by Richardson, John W. Finley ... Avi Publishing Co Inc.
14. Fundamentals of Food & Nutrition by Sumati R. Mudambi, Published by New Age International (P) Ltd.,
15. Nutrition & Dietetics by Rose
16. Food science by Sri Laxmi, New Age International Publishers, New Delhi
17. Food chemistry (Narosa publication) by H.K. Chopra and P.S. Panesar (2010), Published By Morgan & Claypool