

B.Sc Food Science and Quality Control(2019-20)
DSC - 1A(Semester-I)
FOOD CHEMISTRY AND NUTRITION

CREDITS -4; 60 HOURS

Course Objectives:

- To provide an optimum environment for students to gain an understanding of the chemical bases of food component reactivity and functionality.
- To provide an opportunity for students to test various approaches for manipulating the chemical and/or functional properties of foods.

Credit –I

1. Introduction to nutrition–definition of nutrition, Food as a source of nutrients. Functions of foods
2. Interrelationship between nutrition and health, visible symptoms of good health.
3. Food guide-basic five food groups and usage of food guide.
4. Use of food in body-digestion, absorption, transport, utilization of nutrients in the body.

Credit–II

1. Carbohydrates-composition, classification, sources, functions, structure, physical & Chemical properties.
2. Lipids–classification, composition, nomenclature, saturated & unsaturated fatty acids, food sources, functions of fats.
3. Proteins–composition, classification, sources, functions, denaturation and protein deficiency, determination of protein quality.
4. Aminoacids–classification, Physio-chemical properties, modification of food protein through processing and storage.

Credit –III

1. Water as a nutrient, functions, sources, requirement, structure and water balance–effect of deficiency.
2. Moisture in food: Hydrogen bonding, Bound water, free water, Water activity and Food stability
3. Energy–Unit of energy, food as a source of energy, energy value of food, body's Need for energy, energy requirement for different age groups. B.M.R. activities
4. Enzymes. Nomenclature, specificity, uses of enzymes in foods, enzyme added to food during processing

Credit –IV

1. Mineral functions, sources, Bio-availability and deficiency of minerals.
2. Vitamins–Classification, units of measurement, sources, functions and deficiency diseases caused by following vitamins: Fat soluble vitamins-A,D,E,K. - Water Soluble Vitamins :B- complex group, Vitamin C
3. Pigments indigenous to food, structure, chemical and physical properties. Effect of processing and storage.
4. Flavours– Vegetables, fruit and spice flavours, fermented food, Meat and sea food.

COURSE OUTCOME:

Student will be able to understand the basic components of food and their importance.

Text books:

1. FennemaOR.1996.*FoodChemistry*.MarcelDekker.
2. MeyerLH.1987.*FoodChemistry*.CBS.
3. BelitzHD.1999.*FoodChemistry*.SpringerVerlag.
4. DeManJM.1976.*Principles ofFoodChemistry*. AVI.
5. Bamji MS,RaoNA& ReddyV.2003.*TextbookofHumanNutrition*.Oxford&IBH.
6. SwaminathanM.1974.*Essentials ofFoods andNutrition*.Vol.II. Ganesh& Co.

PRACTICAL

B.Sc. Food Science and Quality Control (Sem-I)

FOOD CHEMISTRY&NUTRITION

NO. OF CREDITS-1

1. Qualitative tests for monosaccharides-Glucose, Fructose and Galactose
2. Qualitative tests for Disaccharides-maltose, lactose and sucrose.
3. Qualitative tests for Polysaccharides-starch
4. Estimation of glucose in a given sample.
5. Qualitative tests for amino acids.
6. Qualitative tests for proteins
7. Estimation of Acid value.
8. Estimation of Peroxide value
9. Estimation of Fat
10. Determination of Ash and Acid insoluble Ash content
11. Estimation of Moisture content.

