

WEST BENGAL COUNCIL OF HIGHER SECONDARY EDUCATION

SUBJECT: NUTRITION (NUTN)

CLASS – XI SEMESTER – I FULL MARKS: 35

Unit	Topics	Hrs	Marks
Unit 1 Introduction To Food, Nutrition And Health	 I. Basic concept of Food, Nutrition, Nutrients and Nutrition Science Food-definition, components of food, Classification of food according to physiological functions performed, components in it and source of origin Social and Psychological functions of food Nutrients-definition, types-macro and micronutrients in food Proximate and protective principles of food Energy from food and calorie concept Standard food, adequate food and Balanced diet. Nutrition-definition, five phases of Nutrition in body (outline only detail to be discussed in later units) Relation between Food and Nutrition Nutrition Science and its application (elementary idea) 	10	
	 II. Concept of Health inrelation to Nutrition Health-definition, dimensions of health-namely physical, mental and social, positive health Indicators Malnutrition as a health disorder-definition, causes of malnutrition in India Classification of Malnutrition-Over, Under and Imbalance. Specific deficiency disorders (outline only details to be covered in later units) Nutritional Status-concept and methods of assessment of Nutritional status namely Anthropometric, Biochemical, Clinical, Diet Survey etc. Biophysical examination, Functional assessment and use of growth chart for assessment of Nutritional Status 	10	10
Unit 2 Macromolecules In Nutrition	 I. Carbohydrates in Nutrition: Basic concept of Carbohydrates as compounds of carbon, definition. Dietary sources and daily requirements Structural Classification of carbohydrates based on simple sugar units in them elementary concept Chemical structure of Hexoses (Glucose and Fructose straight chain only) and basic concept of isomer. Monosaccharaides (Glucose, Fructose and Galactose only) Concept of ketohexose, aldohesase, reducing and non-reducing sugar with examples. Elementary idea of Polymer and monomer Disaccharides and their products on hydrolysis (elementary concept) Polysaccharides (elementary concept, chemical structure not required) Physiological functions of carbohydrates. Dietary Fiber types and its role in health Effect of excess and deficiency of carbohydrates in humans. 	15	25



II. Proteins in Nutrition:

- Protein definition.
- Amino acids -definition, Amino acids as structural units of Protein.
- General structural formula of amino acids, peptide bond and formation of dipeptide.
- Protein precipitation, coagulation (denaturation)
- Nutritional classification of amino acids- Essential and non-essential amino acids
- Dietary sources and daily requirements
- Classification of proteins according to source of origin, structure and nutritive quality.
- Vegetable protein Vs. Animal protein
- Physiological functions of protein.
- Deficiency and excess intake effects
- Nitrogen Balance(Elementary concept)

Assessment of protein quality-PER, DC, BV, NPU and chemical score (elementary concept), Reference protein.

III. Fats and oils in Nutrition:

- Fats definition, dietary sources, daily requirement
- Chemical structure of Fat (as a compound of fatty acid and glycerol)
- Chemical properties of Fat namely Saponification, Hydrolysis, Hydrogenation, Rancidity.
- Physiological functions of Fat
- Classification of fats according to dietary sources, visibility, state at room temperature and chemical structure (elementary)

Vegetable oil vs. Animal Fats

 Fatty acids as component of fat molecules (Elementary concept of the following Nutritional classification of fatty acids-Essential Fatty Acids (EFA), Saturated Fatty acids (SFA), Unsaturated Fatty Acids (UFA). Poly Unsaturated Fatty Acids (PUFA) omega 3 and 6 -nutritional significance, Mono Unsaturated Fatty Acids (MUFA), Trans fatty acids

 Cholesterol-types in (elementary concept), serum normal serum level of total Cholesterol. Effect of excess level. 10

15

Semester I:

CLASS TYPE	HOURS
Theory Classe	60
Practical Classes	40
Remedial/Tutorial/Home Assignments	10
TOTAL	110