Vidyasagar University

Curriculum for B.Sc. Honours in Nutrition [Choice Based Credit System]

Semester-I

Sl.No.	Name of the Subject	Nature	Code	Teaching Scheme in hour per week			Credit	Marks
				L	T	P		
C1	**C1T:** Basic Nutrition (Theory)	Core Course-1		4	0	0	6	75
	C1P: Basic Nutrition (Practical)	Core Course1 [Practical]		0	0	4		
C2	**C2T:** Food Science and Food Commodity (Theory)	Core Course-2		4	0	0	6	75
	C2P: Nutritional Biochemistry (Practical)	Core Course-2 [Practical]		0	0	4		
GE-1	GE-1	GE					4/5	75
	GE-1	GE					2/1	
AECC	English	AECC					2	50
				Total Credits =20				

L= Lecture, T= Tutorial, P=Practical

AECC- Ability Enhancement Compulsory Course: English /Modern Indian Language

Interdisciplinary/Generic Elective (GE) from other Department

[**Four papers are to be taken and each paper will be of 6 credits**]: Papers are to be taken from any of the following discipline: **Chemistry/Physiology/Botany /Zoology/Computer Sc/Microbiology/Bio-Technology/Mathematics/Statistics**

Semester-1

Core Courses

CC-1 : Basic Nutrition **Credits 06**

C1 T1: Basic Nutrition (Theory) **Credits 04**

1. Concept and definition of terms Nutrition, Malnutrition and Health: Brief history of nutritional science. Scope of nutrition.

2. Minimum Nutritional Requirements and RDA : Formulation of RDA and Dietary Guidelines: Reference Man and Reference Woman.

3. Body Composition and Changes through the life cycle.

4. Energy in Human Nutrition: Idea of energy and its unit, energy balance, Assessment of energy requirements, Deficiency and Excess, Determination of energy in food, B.M.R & influencing factors, S.D.A.

5. Energy and other nutritional requirement of adult male and female engaged in different types of work (Sedentary, moderate, heavy).

6. Food as source of nutrients, function of food, definition of nutrition, nutrients and energy, adequate, optimum and good nutrition, malnutrition.

7. Nutrition- Fitness, Athletics and sports.

8. Food Guide- Basic food groups, How to use food guide (according to RDA).

9. Interrelationship between nutrition and health- Visible symptoms of goods health.

10. Function of nutrients- Carbohydrate, dietary fibre, protein, fat, vitamins, minerals, anti-oxidants, water.

11. Effect of cooking and heat processing on the nutritive value of foods.

12. Processed supplementary foods

13. Food sanitation in hygiene.

C1 P1: Basic Nutrition (Practical) Credits 02

1. Use and care of kitchen equipment.

2. Weights and measures standards; household measures of raw and cooked foods.
3. Food preparation and classifying recipes as good, moderate or poor, sources of specific nutrients, Amount of ingredients to be in standard recipe-

a) Portion size
b) Beverages: tea, coffee, cocoa, fruit juice, milk, milkshakes.
c) Cereals and flour mixtures- basic preparation and there nutritive value- Boiled rice and rice pulao, chapatti, parantha, sandwiches, pastas, pancakes, cookies and cakes.

4. Vegetables and fruits: Simple salad, dry vegetables, curries, fruits preparation using fresh and dried stewed fruit, fruit salad.

5. Milk and milk products: Porridges, curds, anner and their commonly made preparations, milk based simple desserts and puddings, custard, kheer, ice-cream.

6. Meat- Cut of meats Meat preparations, Fish, poultry, hard and soft cooked, poached, scrambled, fried omelette, eggnogs.

7. Soups: Basic, clear and cream soups.
8. Snacks: pakoras, cheese toast, upma, poha, peanut, chikki, ti and laddo

Core Course -2

CC-2 : Food Science and food commodity Credits 06

C2 T2: Food Science and food commodity Credits 04

1. Basic concept on Food, Nutrients, Nutrition.

2. Classification of Food, Classification of Nutrients.

3. Carbohydrates - Definition, Classification, Structure and properties. Monosaccharides - glucose, fructose, galactose. Disaccharides - Maltose, lactose, sucrose. Polysaccharides - Dextrin, starch, glycogen, resistance starch.

4. Lipids - Definition, Classification & Properties. Fatty acids - composition, properties, types.

5. Proteins - Definition, Classification, Structure & properties.

Amino acids - Classification, types, functions.

6. Carbohydrates - Sources, daily requirements, functions. Effects of too high - too low carbohydrates on health. Digestion & Absorption. Blood glucose and effect of different carbohydrates on blood glucose. Glycemic Index. Functional role of Sugars in food, Fermention of Sugar.

7. Proteins - Sources, daily requirements, functions. Effect of too high - too low proteins on health. Digestion & absorption. Assessment of Protein quality (BV, PER, NPU). Factors affecting protein bio-availability including anti-nutritional factors.

8. Lipids - Sources, daily requirements, functions. Digestion & Absorption. Role & nutritional significances of PUFA, MUFA, SFA, W-3 fatty acid.

9. Dietary Fibre - Classification, sources, composition, properties & nutritional significance.

10. Minerals & Trace Elements, Bio-Chemical and Physiological Role, bio-availability & requirements, sources, deficiency & excess (Calcium, Sodium, Potassium Phosphorus, Iron, Fluoride, Zinc, Selenium, Iodine, Chromium).

11. Vitamins - Bio-Chemical and Physiological Role Physiological role, bio-availability and requirements, sources, deficiency & excess.

12. Water - Functions, daily requirements, Water balance.

13. Sensory characteristics of food

14 Food behaviour, modification of food behaviour

15. Cereals and Millets: Cereal products, breakfast cereals, fast foods. Structure, processing, storage, use in various preparations, variety, selection and cost.

16. Pulses and Legumes: Production (in brief), structures, selection and variety. Storage, processing and use in different preparations. Nutritional aspects and cost.

17. Milk and Milk-products: Composition, classification, selection quality and cost, processing, storage and uses in different preparations. Nutritional aspects, shelf - life and spoilage.

18. Eggs: Production, grade, quality, selection, storage and spoilage, cost, nutritional aspects and use in different preparations.

19. Meat, Fish and Poultry: Types, selection, purchase, storage, uses, cost, spoilage of fish poultry and meat, uses and preparations.

20. Vegetables and Fruits: Types, selection, purchase, storage, availability. Cost of use and nutritional aspects of raw & processed products and use in different preparations.

21. Sugar and Sugar products: Types of natural sweeteners, manufacture, selection, storage and use as preserver, stages in sugar cookery.

22. Fats and Oils: Types and sources (animal and vegetable), processing, uses in different preparations, storage, cost and nutritional aspects.

23. Raising and Leavening agents: Types, Constituents, Uses in cookery and bakery, Storage.

24. Food Adjuncts: Spices, Condiments, Herbs, Extracts, Concentrates, Essences, Food Colours. Origin, classification, Description, uses, Specifications, procurements and Storage.

25. Convenience Foods: Role, types, advantages, uses, cost and contribution to diet.

26. Salt: Types and uses.

27. Beverages: Tea; Coffee. Chocolate and Cocoa Powder-Processing, cost and nutritional aspects, other beverages-Aerated beverages, juices.

28. Preserved Products : Jams, Jellies, Pickles, Squashes, Syrups types, composition and manufacture, selection, cost, storage, uses and nutritional aspects.

29. Food Standards : ISI, Agmark, FPO, MPO, PFA.

30. New food: fast food, junk food, GM food, Free food

31. Food, preservation, food processing, food adulteration and food storage.

C2 P2: Nutritional Biochemistry (Practical) Credits 02

1. **Carbohydrate**

a. Reactions of Mono, Di and Polysaccharides and their identification in unknown mixtures.
b. Estimation of reducing and total sugars in foods.
c. Estimation of lactose in milk.

2. **Fats**

a. Reactions of fats and oils
b. Determination of Acid value, Saponification of natural fats and oils.

3. **Proteins**

a. Reactions of proteins in foods
b. Reaction of amino acids and their identification in unknown mixtures
c. Estimation of total nitrogen of foods by Kjeldhal method.

Generic Elective

GE-1 [Interdisciplinary for other department]

GE-1 : BASIC HUMAN NUTRITION Credits 06

GE-1 T: BASIC HUMAN NUTRITION

(Credits: 6)

1. Concept and definition of terms-Nutrition, Malnutrition and Health. Brief history of nutrition science. Scope of Nutrition.

2. Body Composition and Changes through the life cycle.

3. Minimum Nutritional Requirement and RDA. Reference Man and Reference Woman.

3. Energy in Human Nutrition : Idea of Energy and its unit, Energy Balance, Assessment of Energy Requirements of the body, B.M.R & influencing factors, S.D.A, Calorific value of food, Determination of Energy in food.
4. Food groups.

5. Function of nutrients- Carbohydrate, dietary fibre, protein, fat, vitamins, minerals, anti-oxidants, water.

6. Effect of cooking and heat processing on the nutritive value of foods.