



UNIVERSITY OF CALCUTTA

Notification No.CSR/24/2023

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of her powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 08.08.2023 approved the syllabus of the under mentioned subjects semester wise Four-year (Honours & Honours with Research) /Three-year (Multidisciplinary) /Four-year (Honours with core Vocational) programme of U.G. courses of studies, as applicable under CCF,2022, under this University, as laid down in the accompanying pamphlet.

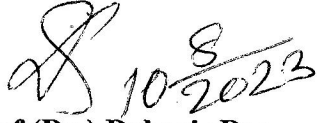
Name of Subject

1. **Clinical Nutrition & Dietetics (core vocational)**
2. **Mathematics (After incorporating some amendments, in the syllabus Published in CSR/13/23, dt.12.07.2023)**

The above shall take effect from the academic session 2023-2024.

SENATE HOUSE

Kolkata-700073


Prof.(Dr.) Debasis Das

Registrar

SYLLABUS FOR B.A/B.Sc/B.Com (Honours with Core Vocational in Clinical Nutrition and Dietetics) UNDER CCF FOR FIRST AND SECOND SEMESTER, 2023

Semester	Category of Course	Course Title	Credits		
			Theory	Practical/OP/TU	Total
I	Core Vocational (C-1)	Basic Nutrition	3	1	4
	Minor-1*		3	1	4
	IDC/MDC**		2	1	3
	SEC-1	Food Sanitation and Hygiene	3	1	4
	AEC				
	CVAC				
II	Core Vocational (C-2)	Advanced Nutrition	3	1	4
	Minor-2*		3	1	4
	IDC/MDC**		2	1	3
	SEC-2	Food Safety and Quality Control	3	1	4
	AEC				
	CVAC				

***From other discipline**

**** From other discipline**

FIRST SEMESTER

Core Vocational 1-TH: BASIC NUTRITION

(3 CREDITS)

1. Introduction to nutrition-food as a source of nutrients, function of foods, definition of nutrition, nutrients, adequate, optimum and good nutrition, malnutrition.
2. Inter-relationship between nutrition and health-visible symptoms of good health.
3. Food guide-basic five food groups-how to use food guide.
4. Use of food in body digestion, absorption, transport, utilization of nutrients in the body.
5. Water-as a nutrient, function, sources, requirement, water balance-effect of deficiency.
6. Carbohydrates-composition, classification, food sources, functions, storage in body.
7. Fat and oils-composition, saturated and unsaturated fatty acids, classification of food sources, functions of fats.
8. Proteins-composition, sources, essential, non-essential amino acids, source of proteins, functions, protein deficiency (very brief).
9. Energy-unit of energy, food as a source of energy, energy value of food. The body's need for energy B.M.R activities, for utilization of food to fat energy requirement.
10. Acid-base balance.

Core Vocational 1-P: BASIC NUTRITION(PRACTICAL)

(1 CREDIT)

1. Identification of Mono, Di and polysaccharides
2. Identification of Proteins
3. Identification of glycerol

SEC 1-TH: FOOD SANITATION AND HYGIENE

(3 CREDITS)

1. The relationship of microorganisms to sanitation. Role of microbiology – Environmental effects of microbial growth. Effects of micro-organisms on food degradation and food borne illnesses- bacteria, virus, molds, yeasts, and parasites.
2. Other food hazards – chemicals, antibiotics, hormones, metal contaminationpoisonous foods.
3. Food contamination- sources and transmissions. Water, air, sewage and soil as reservoirs of infection and ways of spread. Other agents of contamination- Humans,

domestic animals, vermins, birds.

4. Importance of personal hygiene of food handler - habits -clothes, illness. Education of food handler in handling and serving food.

5. Safety in food procurement, storage, handling and preparation – control of spoilage – safety of left over foods.

6. Cleaning methods – sterilization, and disinfection –products and methods –use of detergents, heat, chemicals, and tests for sanitizer strength.

7. Control of infestation: rodent control- rats, mice; vector control- use of pesticides

8. Food sanitation, control and inspection-planning and implementation of training programme for health personnel.

SEC 1-P: FOOD SANITATION AND HYGIENE (PRACTICAL) (1 CREDIT)

1. Study of personal and environmental hygiene habits of street food handlers. Intervention and result analysis. Project submission and presentation

SECOND SEMESTER

Core Vocational2-TH: ADVANCEDNUTRITION (3 CREDITS)

1. Minerals-functions, sources, bio-availability, requirement, deficiency & toxicity of following minerals-calcium, iron, iodine, fluorine, sodium, potassium

2. Vitamins-classification, units of measurement, sources, functions, deficiency and toxicity of following vitamins:

a) Fat soluble vitamins: Vitamin A, Vitamin D, Vitamin E, Vitamin K

b) Water soluble vitamins: Ascorbic acid, Thiamine, Riboflavin, Niacin, Other member of B complex such as B6, Folic acid and B12.

Core Vocational2-P: ADVANCEDNUTRITION(PRACTICAL) (1 CREDIT)

1. Determination of Ash content in food

2. Determination of Moisture content in food

3. Determination of calcium, iron, and Vitamin C content in foods

SEC 2- TH: FOOD SAFETY AND QUALITY CONTROL

(3 CREDITS)

1. The relationship of microorganisms to sanitation, Effects of microorganisms on fooddegradation and food-borne illnesses.
2. Importance of personal hygiene of food handlers: Habits, clothes, illness, education of food handler in handling and serving food. Concept of food contamination.
3. Food Safety: Definition and factors affecting food safety, safety of left over foods. Control of Food spoilage.
4. Food Adulteration: Definition, reasons and types. Adulterants in common food items.
5. Food Laws and Standards: i) Codex Alimentarius ii) Prevention of Food Adulteration (PFA) Act iii) Agmark iv) Fruit Products Order (FPO) v) Meat Products Order (MPO) vi) Bureau of Indian Standards (BIS) vii) Food Standards and Safety Authority of India(FSSAI)

SEC 2- P: FOOD SAFETY AND QUALITY CONTROL (PRACTICAL) 1 CREDIT

1. To detect the adulterants like dyes and argemone in the fats, oils and ghee.
2. To detect the presence of adulterants like water, urea, formalin, detergent, sugar and starch in the milk.
3. To detect the adulteration of insoluble substance, chalk powder and washing soda in sugar.
4. To detect the adulteration of brick powder in chilli powder, Metanil yellow in turmeric.
5. To detect colouring agents in fruit juices and sweets.

REFERENCE BOOKS/ JOURNALS:

BASIC NUTRITION

1. Guthrie, Hele, Andrews, Introductory Nutrition, 6thed. St. Louis, Times Mirror/Mosby College, 1988.
2. Mudambi S.R, M.V Rajgopal Fundamentals of Foods and Nutrition(2nded)Wiley Eastern Ltd,1990.
3. Swaminathan S.: Advanced text book on Foods Nutrition Vol. I, II (2nded revised and enlarged) B.app C.1985.
4. Willson, EVAD Principles of Nutrition, 4thed. New York John Willey and Sons, 1979.
5. Textbook of Nutrition-Ravinder Chadha & Pulkit Mathur, Orient BlackswanPvt. Ltd. Telangana.
6. SrilakshmiB.(2018).Nutrition Science. New Delhi: New Age International.

7. Clinical Nutrition & Dietetics- F. P. Antia and Philip Abraham, Oxford University Press

ADVANCED NUTRITION

1. Michael Zimmerman, Handbook of Nutrition, Micronutrients in Prevention and Therapy of Disease, Thieme Medical and Scientific Publishers Ltd, U.P.
2. Clinical Nutrition & Dietetics- F. P. Antia and Philip Abraham, Oxford University Press
3. Indian Council of Medical Research Nutrient Requirements and Recommended Dietary Allowances for India, A Report of the Expert Group of the Indian Council of Medical Research, New Delhi; ICMR.
4. Matab S. Bamji, N. PrahladRao, Vinodini Reddy (1996): Text Book of Human Nutrition, Oxford & IBM Publishing Co. Pvt. Ltd., New Delhi.
5. Swaminathan M. (1991) : Advanced Text Book on Food & Nutrition, Vol. I & 11 (2nd Edition, Revised), Bangalore printing & Publishing Ltd.
6. Kathleen Mahan and Sylvia Escort – Stump (2000) : Food, Nutrition & Diet Therapy 11th Edition, W.B. Saunder"s Company London.
7. Scrimshaw, N.S. and Gleason, G.R. (1992) Assessment Procedures. Qualitative Methodologies for Planning and Evaluation of Health related Programmes. International Nutrition foundation for Developing Countries, Boston.
8. Roach Benyan (2003) Metabolism and Nutrition Elsevier Science Ltd. Philadelphia. U.S.A.
9. Susan G. Dudek (2007) Nutrition Essentials for Nursing Practice, LippincotWilleams d Wilkias, Philadelphea.
10. Z.S.C. Okoye: Biochemical Aspects of Nutrition, Prentice - Hall of India Private Limited, New Delhi.
11. S.P.Singh: A Text Book of Biochemistry, Published by S.K.Jain, CBS publishers, New Delhi
12. Shilo, M.E., Olson, J.A. and Shike, M. (1994) : Modem Nutrition In Health And Disease, 8'h Edition, Philadelphia; Lea and Febiger (Vol. I & 11).
13. Michael J. Gibney, Hester V Vorster and Frans J Kok (2003) Introduction to Human Nutrition. Blackwell publishing Oxford, U.K.

FOOD SANITATION AND HYGIENE

1. Textbook of Food and Beverage Management by Sudhir Andrews, Tata Mc Graw Hill, New Delhi.
2. Food Hygiene and Sanitation by S. Roday
3. Essentials of food safety and sanitation by David Ms Swane, Nancy Rue and Richard Linton
4. Essentials of Food Sanitation by Marriott, Norman
5. Food Safety, Sanitation and Personal Hygiene by BC Cook Articulation Committee and The BC Cook Articulation Committee

FOOD SAFETY AND QUALITY CONTROL

1. Food Hygiene and Sanitation by S. Roday
2. Singhal, R. S. (1997) Handbook of indices of food quality and authenticity. Cambridge Woodhead Publishing, New York.
3. Essentials of food safety and sanitation by David Ms Swane, Nancy Rue and Richard Linton
4. Text Book of Food Safety and Quality Control by Pulkit Mathur
5. Essentials of Food Sanitation by Marriott, Norman
6. Food Safety, Sanitation and Personal Hygiene by BC Cook Articulation Committee and The BC Cook Articulation Committee