

COURSE MODULE
(SEM – III & IV)

NUTRITION HONOURS

CBCS SYLLABUS
(Burdwan University)

W.E.F. 2017 - 2018

2nd YEAR**SEMESTER - III**

SEMESTER - III		
CC 5: NUTRITIONAL BIOCHEMISTRY		
Topic	Content	No. of Lectures (approx)
Carbohydrate:	Classes of carbohydrates (monosaccharides, oligosaccharides and polysaccharides).	4
	Properties and dietary importance of starch, sucrose, lactose, glucose and fructose.	4
	Metabolism: Glycolysis, Tricarboxylic acid (TCA) cycle, Gluconeogenesis, Glycogenesis, Glycogenolysis and regulation of blood sugar level.	12
Protein:	Classes, properties, functions and secondary structure of protein (alpha helix, beta pleated sheet).	6
	Concept and definition: Complete and incomplete proteins, Biological value, Protein Efficiency Ratio (PER), Net Protein Utilisation (NPU), Essential and non-essential amino acids.	4
	Protein metabolism: Deamination, Transamination and Urea cycle.	6
Lipid:	Classes of lipids, Properties and functions of fats, oils and fatty acid (PUFA, MUFA, SFA. TFA).	6
	Lipid metabolism (Beta - oxidation of fatty acids).	4
Enzyme:	Classification, properties and factors affecting enzyme activity.	4
	Brief idea on mechanism of enzyme action (Fischer Lock and key model) and preliminary concept of enzyme inhibition.	6
CC 6: NUTRITION: LIFE CYCLE APPROACH		
Nutrition during infancy	Breast feeding, Formula feeding, Weaning, Supplementary foods, Nutritional management of Preterm baby.	8
Nutrition for children	Diet in early childhood, elementary school age, high school age.	8
Nutrition during pregnancy and lactation	Nutritional demands of Pregnancy, Food selection during Pregnancy, Complications of pregnancy and dietary management, Diet during Lactation.	12

Nutrition to athletes:	Nutritional requirements and dietary management in sports man and athletes, Meal planning for athletes.	8
Geriatric nutrition:	Planning of meals for older people, Nutrition of aged persons, Physiological complications in geriatric group and dietary modifications required, Oxidative stress and aging and role of antioxidative nutrients for preventing aging.	12
CC 7: DIET THERAPY-I		
General ideas of diet therapy	Therapeutic adaptations of normal diet, Classification of therapeutic diets (Progressive diets – Normal, Soft, Clear and Full fluid).	10
Dietitians and hospital basic diets	Types of dietitians and role of dietitian.	8
	Nutritional adequacy of hospital diets, Basic concept and methods of (i) Oral feeding (ii) Tube feeding (iii) Parenteral feeding.	10
Etiology, symptoms, diagnostic tests and dietary management	Gastro-intestinal tract and liver diseases - Diarrhoea, Constipation, Irritable Bowel Syndrome, Flatulence, Peptic ulcer, Ulcerative Colitis, Viral hepatitis and Cirrhosis of liver.	10
Etiology, symptoms, diagnostic tests and management	Malabsorption syndrome.	6
Dietary management of inborn error in metabolism	Lactose intolerance, Phenylketonuria (PKU) and Alcaptonuria.	6
Allergies:	Definitions, symptoms, diagnosis and dietary management in special reference to food allergy.	6

SEC 1:		TECHNOLOGY OF FRUITS AND VEGETABLES	
Fundamentals of Fruits And Vegetables	Importance of fruits and vegetable, history and need of preservation, reasons of spoilage, method of preservation (short & long term).	4	
	Classification of fruits and vegetables, general composition, enzymatic browning, names and sources of pigments.	6	
	Pathological and chemical changes during the storage of fruits and vegetables.	4	
Canning and Bottling of Fruits and Vegetables	Selection of fruits and vegetables, process of canning, factors affecting the process- time and temperature, containers of packing, lacquering, syrups and brines for canning, spoilage in canned foods.	8	
Fruits Beverages	Introduction, Processing of fruit juices (selection, juice extraction, deaeration, straining, filtration and clarification), preservation of fruit juices (pasteurization, chemically preserved with sugars, freezing, drying, tetra-packing, carbonation),	6	
Jams, Jellies and Marmalades	Jam - Constituents, selection of fruits, processing and technology.	3	
	Jelly-Essential constituents (Role of pectin), Theory of jelly formation, processing and technology, defects in jelly.	3	
	Marmalade-Types, processing and technology, defects.	2	
Pickles, Chutneys, Sauces and Tomato Products	Processing, Types, Causes of spoilage in pickling.	4	
	Selection of tomatoes, pulping and processing of tomato juice, tomato puree, paste, ketchup, sauce and soup.	6	
Dehydration of Fruits and Vegetables	Drying and mechanical dehydration, process variation for fruits and vegetables, packing and storage.	4	

SEMESTER - IV		
CC 8: NUTRITIONAL ASSESSMENT AND NUTRITION PROGRAMME		
Topic	Content	No. of Lectures (approx)
Assessment of Nutritional Status and Surveillance	Direct Nutritional status assessment of human groups - Biochemical, Biophysical and anthropometric methods.	6
	Indirect assessment: Secondary sources of community health data.	3
Concept of Surveillance systems	Role of international and national organizations and agencies (WHO, FAO, UNICEF, CARE, NIN, CFTRI, ICMR).	6
Communication in Nutrition and Health Education:	Type, process and media of communication.	3
	Interpersonal, Group and Mass communication.	3
	Importance and relevance of Information, Education and communication (IEC) in Nutrition and Public Health.	4
National Nutritional Intervention Programmes	Objective, Target group, Scheme details - Integrated Child Development Services (ICDS), Mid Day Meal Programme (MDMP), Vit A prophylaxis Programme, Anemia prophylaxis programme, Iodine deficiency disorders control programme.	12
	Concept on public distribution system.	3
Immunization Programme	Preliminary concept of immunity-innate, acquired, active and passive immunity.	4
	Immunization: National Immunization schedule for children and adults, Immunization for foreign travelers.	4
CC 9: COMMUNITY NUTRITION AND EPIDEMIOLOGY		
Concept of population and Community	Definition and characteristic features of population	3
	Concept of community and community health, types of community.	3
	Factors affecting health of community – environmental, social, political, cultural and economical.	6
Community water and waste management	Source of water, safe drinking water, etiology and effects of toxic agents.	6
	Microbial examination of water, Water-Potability test (MPN Test).	6
	Sewage disposal and treatment.	4

Nutritional problems in community	Etiology, Clinical signs and management- Kwashiorkor, Marasmus, Goiter and Nutritional anemia.	6
Concept of Disease	Endemic, Epidemic, Pandemic, Acute and Chronic, Incubation period and Quarantine period.	4
	Communicable and Non-communicable diseases, Zoonosis, Epizootic and Enzootic.	4
Principles of Epidemiology	Epidemiological study-Descriptive and Analytical.	8
	Factors that Influence the Epidemiology of Disease.	2
	Rate of Disease in a Population-Attack rate, Mortality and Morbidity rate, Prevalence and Incidence of a disease.	4
CC 10: DIET THERAPY-II		
Etiology, clinical features and dietary management	Weight Imbalances: Underweight, Overweight and Obesity.	6
Eating disorder	Concept of Anorexia nervosa and bulimia.	4
Etiology, Risk factor, Sign and Symptom, Diagnosis and dietary management	Diabetes mellitus, Diabetes insipidus and Cancer	14
Etiology, Risk factor, Sign and Symptom, Diagnosis and dietary management	Hypertension.	4
	Renal diseases (Nephritis, Glomerulonephritis, Uremia, Kidney failure, Nephrosis).	16
Diseases of the cardio vascular system	Brief review of lipoproteins (TC, TG, LDL, HDL, VLDL)	4
	Atherosclerosis–etiology and risk factor.	2
	Dietary care: Ischemic heart disease, arteriosclerosis and hyperlipidemia.	4

SEC 2: IMMUNOLOGY, TOXICOLOGY AND PUBLIC HEALTH		
Immunology	Basic concept of immunity, Types of immunity- Naturally acquired active and passive immunity, artificially acquired active and passive immunity.	6
Humoral immune system	Mechanisms, the antigens and antibodies-their structure, immunoglobulin isotypes-IgG, IgM, IgA, IgD, and IgE.	8
Cell mediated immune system	Types of effector T cells, mechanisms of cell mediated immunity.	8
Toxicology	Brief history, Different areas of modern toxicology, classification of toxic substances, various definitions of toxicological significance.	8
Toxic agents	Human exposure, mechanism of action and resultant toxicities of the following xenobiotics: Metals: lead, arsenic, Pesticides: organophosphates, carbamates, organochlorine and anticoagulant pesticides.	8
Eco-toxicology	Brief introduction to avian and aquatic toxicology, movement and effect of toxic compounds in food chain (DDT, mercury), bioaccumulation, biomagnification, concept of BOD and COD.	8
Clinical toxicology	Management of poisoned patients, clinical methods to decrease absorption and enhance excretion of toxicants from the body use of antidotes.	8