

DIVISION OF SYLLABUS INTO MODULES

And

ASSIGNED TEACHERS

For

TEACHING DIFFERENT MODULES

Academic Year: 2022-23

(First Semester)

SEMESTER I

C1.T1 Food Science and Basic Nutrition I		
Modules	Topic	Teacher
1	<p>Basic concept on food and nutrition: Definition and classification of food and nutrients; Meaning of nutrition and balanced diet.</p>	Malay Kumar Patsa
2	<p>Carbohydrates: Definition, Classification, General physical properties of sugars and non-sugars; General chemical properties of carbohydrates –</p> <ul style="list-style-type: none"> • Structure and configuration of glucose, fructose and galactose. • Isomerisms: epimers, anomers, D & L sugars, aldoses and ketoses, pyranoses and furanoses with proper examples and configurations. • Optical activity and mutarotation of glucose. • Chemical reactions of glucose – oxidation, reduction, acetylation, cyanohydrins formation, oxime formation, osazone reaction (glucose and fructose). • Chain lengthening of aldoses: Killiani synthesis. • Chain shortening of aldoses: Ruff degradation. • Conversion of aldose to isomeric ketose and ketose to isomeric aldose. • Molecular structure of disaccharides: sucrose, lactose and maltose. • Reducing and non-reducing sugar. <p>Dietary sources, functions, role in human health and disease, requirements of carbohydrates.</p>	Malay Maji
3	<p>Lipids: Definition, Classification, General physical properties, General chemical properties–</p> <ul style="list-style-type: none"> • General structure of glycerides. • Simple and mixed glycerides. • Distinction between fats and oils. • Hydrolysis, hydrogenation, hydrogenolysis, drying and rancidification of fats & oils. 	Malay Kumar Patsa

	<ul style="list-style-type: none"> Analysis of fats and oils: Saponification number, Iodine number, Acid number, Reichert-Miessl number, soaps and detergents, Acetyl number. <p>Dietary sources, functions, role in human health and disease, requirements of fats and lipids.</p>	
4	<p>Amino acids and Proteins: Definition, Classification;</p> <ul style="list-style-type: none"> General properties of amino acids and proteins – Zwitterion, isoelectric point, peptide linkage, colloidal nature, denaturation. General chemical properties of proteins – formation of salts, hydrolysis, oxidation. Colour reaction of proteins – Xanthoproteic test, Biuret test, Milon’s test, Ninhydrin test, Hopkins-Cole test. Quality of proteins – BV, NPU, PER, Net Dietary Protein Energy Ratio, Amino Acid Score, PDCAAS. <p>Dietary sources, functions, role in human health and disease, requirements of proteins.</p>	Malay Maji
5	Dietary fibre: Sources, classification and nutritional significance	Malay Kumar Patsa
C1.P1 Food Science and Basic Nutrition I (Practical)		
1	Colorimetric estimation of carbohydrate (Anthrone method), Protein (Lowry method)	Malay Maji
2	Qualitative detection of carbohydrates: Molisch’s test, Benedict’s test, Barfoed’s test, Seliwanoff ‘s test, Iodine test, Fehling’s test	Malay Maji
3	Qualitative detection of fats	Malay Kumar Patsa
4	Biuret test, xanthoproteic test, ninhydrin test	Malay Kumar Patsa

C2.T2 Human Physiology I		
Modules	Topic	Teacher
1	Structure and Functions of eukaryotic cell: Structure and functions of cell organelles: cell membrane, nucleus, endoplasmic reticulum, mitochondria, ribosomes. Cellular transport.	Mousumi Ganguly
2	Blood and Cardiovascular System: Composition of blood; Abnormal constituents of blood; Clotting time and Bleeding time, Blood groups, Blood coagulation. Structure and function of heart, Heart rate, Cardiac cycle, Cardiac output, Systemic, portal and cerebral circulation; Blood pressure and its regulation.	Malay Kumar Patsa
3	Alimentary System: Structure and functions of various organs of the GI Tract, Digestive juices, Digestion and absorption of food	Rumpa Dhua
4	Respiratory system: Structure of lungs and gaseous exchange (oxygen and carbondioxide transport), Lung volumes and capacities, Acclimatization.	Malay Kumar Patsa
5	Excretory System: Structure and Function of Kidney. Structure of nephron; Glomerular filtration and tubular functions; Formation of Urine. Role of kidney in homeostasis.	Rumpa Dhua
C2.P2 Human Physiology I (Practical)		
1	Preparation of blood film and blood analysis: T.C., D.C.	Malay Maji
2	Determination of bleeding time and clotting time of blood	Malay Maji
3	Estimation of blood pressure by Sphygmomanometer	Malay Kumar Patsa
4	Detection of Blood group	Malay Kumar Patsa

SEMESTER III

C5.T5 Nutritional Biochemistry I		
Modules	Topic	Teacher
1	Enzyme: Classification, Properties, factors affecting enzyme activity, kinetics, inhibitions, isozymes.	Mousumi Ganguli
2	Carbohydrate Metabolism: Glycolysis, TCA Cycle, Biological Oxidation, Gluconeogenesis, Glycogenesis, Glycogenolysis	Malay Kumar Patsa
3	Lipids Metabolism: Synthesis of fatty acids, Beta Oxidation of fatty acids, Ketone bodies, Lipoproteins	Malay Kumar Patsa
4	Proteins Metabolism: Deamination, transamination, Urea Cycle	Malay Maji

C6.T6 Food Commodities		
Modules	Topic	Teacher
1	Food guide pyramid, Basic food groups, Food exchange list	Rumpa Dhua
2	Cereals: General structure of cereal grains. Nutritional aspects, storage and processing of wheat, rice and oats. cereal cookery; breakfast cereals – ready-to-eat & ready-to-cook, fermented and non-fermented cereals and cereal products.	Rumpa Dhua
3	Pulses & Legumes: Nutritional contribution, Processing and storage, Toxic constituents	Rumpa Dhua
4	Milk & Milk products: Nutritive value, composition, processing, storage. Milk products: butter, curd, cheese, paneer	Rumpa Dhua
5	Eggs: Different parts, Nutritional aspects and uses, Quality of eggs, Egg white foam.	Malay Maji
6	Meat, Fish and Poultry: Nutritional contribution, post-	Malay Maji

	mortem changes, ageing, tenderisation, curing of meat, preservation and storage, spoilage of meat. Classification of fish, nutritive value, selection, spoilage, preservation and storage of fish.	
7	Vegetables & Fruits: Nutritional contribution, Processing and storage, spoilage	Malay Maji
8	Sugar: Properties and nutritional aspects; Crystallisation and factor regulating sugar crystallisation; sugar cookery. Types of natural sweeteners; artificial sweeteners.	Malay Maji
9	Salts: Types, nutritional aspects, uses.	Malay Kumar Patsa
10	Fats and Oils: Classification and types, sources, use and nutritional aspects	Malay Kumar Patsa
11	Beverages: tea - types, processing and gradation, coffee - composition and processing, alcoholic beverages, aerated beverages.	Malay Kumar Patsa
12	Spices: Chillies, turmeric, garlic, ginger, fenugreek, cumin, ajwain, cloves - active principle, medicinal properties, culinary uses.	Malay Kumar Patsa

C7.T7 Human Nutrition		
Serial no.	Topic	Teacher
1	Fundamentals of nutrition: concept and definition of terms, Reference Man and Woman, ACU, RDA - definition and formulation, general dietary recommendations	Mousumi Ganguli
2	Growth & Development: Growth and development from infancy to adulthood; Factors affecting growth and development.	Mousumi Ganguli

3	Body Composition: Changes through lifecycle	Mousumi Ganguli
4	Energy in human nutrition: units, bomb calorimeter, physiological fuel value, energy balance, SDA, BMR, REE	Mousumi Ganguli
5	<p>Nutrition during different stages of life:</p> <ul style="list-style-type: none"> • Nutrition during pregnancy: Nutritional requirements; Common problems & Nutrition related complications of pregnancy, Impact of nutritional deficiency on the outcome of pregnancy. • Nutrition during lactation: Nutritional requirements; Factors affecting the volume and composition of breast milk • Nutrition during infancy: Nutritional requirements; breastfeeding, formula feeding and weaning. 	Mousumi Ganguly
	<ul style="list-style-type: none"> • Nutrition during preschool age: Nutritional requirements; Nutrition related problems of preschoolers; • Nutrition during school age: Nutritional requirements; school lunch • Nutrition during adolescence: Nutritional requirements; nutritional problems of adolescence • Nutrition during adulthood: Nutritional requirements based on different activity level; Reference Man and Woman. • Geriatric nutrition: Physiological and metabolic changes in ageing; Nutritional requirements; Nutrition related problems of old age. 	Malay Maji
C7.P7 Human Nutrition (Practical)		
1	Planning and preparation of normal diet for infant.	Mousumi Ganguly
2	Planning and preparation of normal diet for preschool child.	
3	Planning and preparation of normal diet for school child.	

4	Planning and preparation of normal diet for college student.	
5	Planning and preparation of normal diet for adult.	
6	Planning and preparation of normal diet for elderly.	Mousumi Ganguly
7	Planning and preparation of normal diet for pregnant woman and lactating mother.	Mousumi Ganguly

SEC1. Food Adulteration(practical)

Serial no.	Topic	Teacher
1	Food Adulteration: Types of food adulteration, common adulterants in food and their effects on health. Common methods to detect adulterants in foods	Malay Maji
2	Detection of common adulterants in following foodstuffs :	
	Detection of vanaspati in ghee/butter	
	Detection of khesari flour in besan	
	Detection of Metanil yellow in turmeric/coloured sweet products	Rumpa Dhua
	Detection of argemone oil in edible oil	
	Detection of artificial colour/ foreign matter in tea	
	Detection of molasses in honey	
	Detection of dried papaya seeds in black pepper	
Detection of starch in khoa		

SEMESTER V

C11.T11 Community Nutrition		
Serial no.	Topic	Teacher
1	Concept of community, factors affecting community health, Secondary Sources of Community Health data : vital statistics, infant, child and maternal mortality rates	Malay Maji
2	Nutritional Status Assessment: Direct and indirect methods of assessment <ul style="list-style-type: none"> ● Nutritional Anthropometry ● Biochemical and biophysical methods of Nutritional status assessment ● Clinical Assessment of Nutritional deficiencies ● Diet Survey 	Malay Maji
3	Nutrition Monitoring and Nutrition Surveillance: Meaning, objectives and processes; Growth monitoring and growth chart.	Malay Kumar Patsa
4	Malnutrition: causes, consequences and preventive measures	Malay Kumar Patsa
5	International and National Agencies: Role of WHO, FAO, UNICEF, CARE, NIN, ICMR, ICAR and CFTRI to combat malnutrition	Rumpa Dhua
6	1. National Nutrition Intervention Programmes: Objectives, beneficiaries and activities of ICDS, Midday meal and Public Distribution System. Current intervention programmes to combat malnutrition in India.	Rumpa Dhua
C11.P11 Community Nutrition (Practical)		
1	Anthropometric measurement – height, weight, BMI circumference of head and chest, MUAC, Waist-Hip ratio, measurement of fat using skin fold thickness	Rumpa Dhua
2	Clinical assessment and sign of nutrient deficiency : PEM, vitamin A, Anaemia, Rickets, vitamin B complex	Rumpa Dhua

3	Growth chart : plotting and interpretation	Malay Kumar Patsa
4	Diet Survey	Malay Patsa
C12.T12 Community Hygiene and Sanitation		
Serial no.	Topic	Teacher
1	Hygiene and sanitation: Concept of hygiene and sanitation and relation to nutrition, personal hygiene	Malay Maji
2	Community water and waste management: Different sources of water, toxic agents in water and their adverse effects on health, purification of water; Management of solid waste and biomedical waste.	Mousumi Gangui
3	1. Food borne diseases: Food borne infection, food borne intoxication and food poisoning; Symptoms, mode of transmission and prevention of Salmonellosis, Shigellosis and Listeriosis, Staphylococcal infection, Botulism and Aflatoxicosis.	Mousumi Gangui
4	Water borne diseases: Causative agent, mode of transmission, prevention & control of Cholera and amoebiasis.	Mousumi Gangui

DSE1.T1 Food safety and sustainable nutrition		
Serial no.	Topic	Teacher
1	Food Standards: ISI, Agmark, PFA, FPO, MPO, Codex Alimentarius, HACCP, FSSAI	Rumpa Dhua

2	1. Food preservation: general idea of food preservation and processing. Use of high and low temperature, dehydration, freezing, freeze drying, irradiation and preservatives in food preservation, Convenience foods.	
3	Preserved products: jams, jellies, pickles, syrup, squash – uses and nutritional aspects	
4	Nutrient losses and enhancing nutritional quality of foods: Nutrient losses in cooking; Enhancing nutritional quality by supplementation, germination, fermentation, fortification, enrichment	Malay Maji
5	Organic and genetically modified foods: Basic concept; Advantages and disadvantages.	
6	Functional foods – prebiotics and probiotics, nutraceuticals	
DSE1.P1 Food safety and sustainable nutrition (Practical)		
1	Visit to any food processing industry and submission of report.	Rumpa Dhua
2	Preparation of preserved food products: jam, jelly, squash, pickle	

DSE2.T2 Maternal and Child Nutrition		
Serial no.	Topic	Teacher
1	Maternal and child health: Indicators of maternal and child health, Maternal and age specific mortality rates, causes of poor maternal and child health, schedule of antenatal care	Mousumi Ganguly

2	Physiology of pregnancy and lactation: Physiological changes and hormonal regulation of pregnancy, physiology of lactation, hormonal regulation of milk production and secretion, let down reflex	Mousumi Ganguly
3	Pre-term and low birth weight infants: Definitions; Causes of pre-term birth and low birth weight; Developmental problems; Nutritional management.	Mousumi Ganguly
4	Children with special needs: Relationship of Nutrition with disability. Feeding problems and management of children with autism spectrum disorder, cerebral palsy, Down syndrome, Prader- Willi Syndrome cleft palate and lip.	Mousumi Ganguly
5	Nutritional problems of infancy: Causes and nutritional management of growth faltering, obesity, GERD.	Mousumi Ganguly
DSE2.T2 Maternal and Child Nutrition (Practical)		
1	Planning and preparation of weaning food	Mousumi Ganguly
2	Planning and preparation of supplementary nutritious dishes for children, pregnant woman and lactating mother	

DIVISION OF SYLLABUS INTO MODULES

And

ASSIGNED TEACHERS

For

TEACHING DIFFERENT MODULES

Academic Year: 2017-18 (Onward)

SEMESTER II

C3.T3 Human Physiology II		
Modules	Topic	Teacher
1	Endocrine System: Structure, functions, deficiency and excess of pituitary, thyroid, adrenal, pancreas	Rumpa Dhua
2	Reproductive System: Structure and Functions of gonads, gametogenesis, menstrual cycle, brief idea of implantation, pregnancy, parturition, lactation and menopause	Rumpa Dhua
3.	Musculoskeletal System: structure and function of skeletal, smooth and cardiac muscles, properties and contraction of skeletal muscles	Mousumi Ganguly
4.	Nervous System: Neuron and neuromuscular junction, sympathetic and parasympathetic nervous system. Brief anatomy and functions of cerebrum, cerebellum, hypothalamus. cerebrospinal fluid.	Mousumi Ganguly
C3.P3 Human Physiology II (Practical)		
1	Identification with reasons of histological slides: lung, liver, kidney, small intestine, stomach, thyroid, adrenal, pancreas, testis, ovary and muscle of mammals, blood corpuscles of human	Malay maji
2	Haemoglobin estimation (Cyanomethaemoglobin Method)	Malay Maji
C4.T4 Food Science and Basic Nutrition II		
Modules	Topic	Teacher
1.	Vitamins: Dietary sources, requirements, functions and deficiencies and excesses of water and fat soluble vitamins	Malay Kumar Patsa

2	Minerals: Dietary sources, requirements, functions and deficiencies and excesses of Calcium, Phosphorus, Sodium, Potassium, Iron, Iodine, Selenium, Zinc, Fluoride, Magnesium, Chromium, Copper. Absorption of Calcium and Iron.	Malay Maji
3	Water: Requirement, functions, deficiencies and excesses. Water balance.	Malay Maji
C4.P4 Food Science and Basic Nutrition II (Practical)		
1	Estimation of calcium using EDTA by titration	Malay Kumar Patsa
2	Estimation of ascorbic acid by using 2, 6 dichlorophenol indophenol method	Malay Kumar Patsa

SEMESTER IV

C8.T8 Nutritional Biochemistry II		
Modules	Topic	Teacher
1	Nucleic acids: DNA and RNA, Central dogma of life, Replication, Transcription, Translation and Protein Synthesis	Malay Maji
2	Biochemical roles of Vitamins – Thiamine, Riboflavin, Niacin, Folic acid, Vitamin B12, vitamin C	Malay Maji
3	Biochemical roles of Minerals – Ca, Mg, Fe, Zn	Malay Maji

C9.T9 Diet Therapy I		
Modules	Topic	Teacher
1	General idea of diet therapy, principles of diet therapy, therapeutic adaptations of normal diet, classification of therapeutic diets	Rumpa Dhua
2	Types of dietitians and role of dietitians in hospital management	Rumpa Dhua
3	Routine hospital diets : Oral feeding, tube feeding, parenteral nutrition, pre and postoperative diets, diets in surgical conditions and burn injuries	Rumpa Dhua
4	Energy modification of diet. Contributing factors, complications, measurement, nutritional care and prevention of overweight, obesity and underweight	Rumpa Dhua
5	Diets for febrile conditions and infections	Rumpa Dhua
6	Aetiology, symptoms, diagnostic tests, management and nutritional care of gastro-intestinal tract: peptic	Rumpa Dhua

	ulcer, diarrhoea, constipation, irritable bowel syndrome, inflammatory bowel disease, flatulence, haemorrhoids.	
C9.P9 Diet Therapy I (Practical)		
1	Planning and preparation of special diets : clear fluid, full fluid soft, semi solid, high protein, low fat and low calorie, high fibre diet	Rumpa Dhua
2	Preparation of diet chart of patient suffering from the following: <ul style="list-style-type: none"> • Obesity • Peptic ulcer 	Rumpa Dhua

C10.T10 Diet Therapy II		
Modules	Topic	Teacher
1	Pathogenesis and dietary management of nutritional anaemias	Mousumi Ganguly
2	Aetiology, symptoms, diagnostic tests, management and nutritional care of liver and gall bladder: viral hepatitis, cirrhosis of liver, cholelithiasis. Liver function test.	Mousumi Ganguly
3	Aetiology, symptoms, diagnostic tests, management and nutritional care of diabetes mellitus	Mousumi Ganguly
4	Diseases of the cardiovascular system: aetiology, symptoms, risk factors, lifestyle modifications and nutritional care for atherosclerosis, hypertension, dyslipidemia and ischaemic heart disease	Mousumi Ganguly
5	Aetiology, symptoms, diagnostic tests, management and nutritional care of renal diseases: Glomerulonephritis, nephrosis, renal failure	Mousumi Ganguly
C10.P10 Diet Therapy II (Practical)		

1	Planning and preparation of diet chart of patient suffering from the following: <ul style="list-style-type: none"> ● Cardiovascular diseases ● Diabetes Mellitus ● Hypertension ● Glomerulonephritis ● Anaemia 	Mousumi Ganguly
----------	---	--------------------

SEC-2 Practical Approaches in Food and Nutrition (Practical)		
Modules	Topic	Teacher
1	Recording of self diet by 24 hour recall method and its nutritional analysis	Malay Maji
2	Concept of food exchange list	Malay Maji
3	Planning of meals for adults of different activity levels for various income groups	Malay Maji
4	Market survey on nutritional labelling of food products and deciphering nutrition label of packaged food and beverages	Malay Maji

SEMESTER VI

C13.T13 Food Microbiology		
Modules	Topic	Teacher
1	Sources of microorganisms in food	Mousumi Ganguly
2	Physical and Chemical methods of sterilisation and disinfection	Mousumi Ganguly
3	Nutritional requirements of microorganisms, Types, culture media, isolation of pureculture	Mousumi Ganguly
4	Bacterial growth curve. Extrinsic and intrinsic parameters affecting bacterial growth. Generation time and TDT	Mousumi Ganguly
5	Food Spoilage and Contamination: Cereal and cereal products, vegetables and fruits, fish and other sea foods, meat and meat products, milk and milk products	Mousumi Ganguly
6	Microbiological examination of water and milk	Mousumi Ganguly
C13.P13 Food Microbiology (Practical)		
1	Gram Staining of bacteria	Mousumi Ganguly
2	Preparation of liquid and solid media for routine cultivation of bacteria, preparation of slant and stab culture	Mousumi Ganguly
3	Methylene blue reduction test of milk	Mousumi Ganguly
4	Determination of potability of water by presumptive coliform test	Mousumi Ganguly

C14.T14 Epidemiology		
Modules	Topic	Teacher
1	Concept of Health	Malay Kumar Patsa
2	Concept of Epidemiology, Principles of Epidemiology	Malay Kumar

		Patsa
3	Methods of epidemiology	Malay Kumar Patsa
4	Immunization	Malay Kumar Patsa
5	Concept of disease (endemic, epidemic and pandemic, acute and chronic, communicable and non-communicable, zoonosis, epizootic, enzootic, vector-borne and nosocomial), theories of disease causation, transmission of disease	Malay Kumar Patsa
6	Epidemiology of communicable diseases: chickenpox, mumps, measles, influenza, tuberculosis, typhoid, the dengue syndrome, malaria, Japanese encephalitis and AIDS	Malay Kumar Patsa
7	Demographic Cycle	Malay Kumar Patsa

DSE5. T5 Public Health Nutrition		
Modules	Topic	Teacher
1	Introduction to Nutritional Deficiency diseases: PEM, VAD, IDA, IDD, Fluorosis, Vitamin D deficiency	Rumpa Dhua
2	Nutrition for special conditions: sports nutrition, nutrition during emergencies, space nutrition	Rumpa Dhua
3	Nutrition in extreme climates	Rumpa Dhua
4	Nutritional management of cancer, thalassemia, HIV-AIDS	Rumpa Dhua
5	Nutrition Security	Rumpa Dhua
DSE5.P5 Public Health Nutrition (Practical)		
1	Planning and preparation of dishes to treat various	Rumpa Dhua

	nutritional deficiencies: PEM, VAD,IDA	
2	Visit to any National Nutrition Programme and Preparation of Project Report	Malay Kumar Patsa

DSE7.T7 Nutrigenomics		
Modules	Topic	Teacher
1	Concept and applications of Nutrigenomics and Pharmacogenomics	Malay Maji
2	Health Informatics	Malay Maji
3	Nucleic acid and protein Data base	Malay Maji
4	Phylogenetic tree	Malay Maji
5	Sequence similarity searching by BLAST	Malay Maji
DSE7.P7 Nutrigenomics (Practical)		
1	Retrieval of Nucleic acid or Protein sequence from data bases, storing of sequence	Malay Maji
2	Retrieval of protein structure from Protein Data Bank, Protein Structure Visualisation	Malay Maji
3	Sequence alignment by BLAST	Malay Maji