

NUTRITION & BIOCHEMISTRY

Nutrition

Theory 60-hours
(Class 45 + lab 15)

Unit	Learning Objective	Content	Outcome
I	Describe the relationship between nutrition & Health.	Introduction: Nutrition: History Concepts Role of nutrition in maintaining health Nutritional problems in India National nutritional policy Factors affecting food & nutrition : socio-economic, cultural, tradition, production, system of distribution, life style & food habits etc Role of food & its medicinal value Classification of foods Food standards Elements of nutrition: macro and micro Calorie, BMR	At the end of unit students will be able to know about relationship of nutrition & health
Unit	Learning Objective	Content	Outcome
II	Describe the classification, functions, sources and recommended daily allowances (RDA) of carbohydrates	Carbohydrates Classification Caloric value Recommended daily allowances Dietary sources. Functions Digestion, absorption and storage, metabolism of carbohydrates Malnutrition: Deficiencies and Over consumption	At the end of unit students will be able to understand about carbohydrates

Unit	Learning Objective	Content	Outcome
III	Describe the classification, functions, sources and recommend daily allowances (RDA) of Fats.	FATS Classification Caloric value Recommended daily allowances Dietary sources. Functions Digestion, absorption and storage, metabolism Malnutrition: Deficiencies and Over	At the end of unit students will be able to know about fats in detail

Unit	Learning Objective	Content	Outcome
IV	Describe the classification, functions, sources and recommend daily allowance s (RDA) of Proteins	Proteins Classification Caloric value Recommended daily allowances Dietary sources. Functions Digestion, absorption and storage, metabolism of carbohydrates Malnutrition: Deficiencies and Over consumption	At the end of unit students will gain knowledge about proteins
V	Describe the classification, functions, sources and recommended daily allowance s (RDA) of Energy.	Energy Unit of Energy -Kcal Energy requirements of different categories of people. Measurements of energy Body Mass Index (BMI) and basic metabolism Basal Metabolic Rate (BMR) - determination and factors affecting	At the end of unit students will able to understand about energy
VI	Describe the classification, functions, sources and recommended daily allowances (RDA) of Vitamins	Vitamins Classification Recommended daily allowances Dietary sources. Functions Absorption, synthesis, metabolism storage & excretion Deficiencies Hypervitaminosis	At the end of unit students will able to known about vitamins
VII	Describe the classification, functions, sources and recommend d daily allowances (RDA) of Minerals.	Minerals Classification Recommended daily allowances Dietary sources. Functions Absorption, synthesis, metabolism storage & excretion Deficiencies Over consumption and toxicity	At the end of unit students will gain knowledge about minerals

Unit	Learning Objective	Content	Outcome
VIII	Describe the sources, functions and requirements of water & electrolytes	Water & electrolytes Water: Daily requirements, regulation of water metabolism, distribution of body water, Electrolytes: Types, sources, composition of body fluids. Maintenance of fluid & electrolyte balance Over hydration, dehydration and water intoxication Electrolyte imbalances	At the end of unit students will be able to know about water & electrolyte in detail
Unit	Learning Objective	Content	Outcome
IX	Describe the Cookery rules and preservation of nutrients * Prepare & serve simple beverages & different types of foods	Cookery rules and preservation of nutrients Principles, methods of cooking and serving Preservation of nutrients Safe food handling – toxicity Storage of food Food preservation, food additives and its principles Prevention of food adulteration Act(PFA) Food standard	At the end of unit students will be able to gain knowledge about cookery rules
Unit	Learning Objective	Content	Outcome
X	Describe and plan balanced diet for different categories of people	Balance diet Elements Food groups Recommended Daily Allowance Nutritive value of foods Calculation of balanced diet for different categories of people Factors influencing food selection, marketing and budgeting for various cultural and socioeconomic groups Planning menu	At the end of unit students will be able to understand about balanced diet

Unit	Learning Objective	Content	Outcome
XI	Describe various national program related to nutrition Describe the role of nurse in assessment of nutrition l status & nutrition education	Role of nurse in nutritional Programmes National programmes related to nutrition Vitamin A deficiency programme National iodine deficiency disorders (IDD) programme Mid-Day meal programme •Integrated child development scheme (ICDS) •National and International agencies working towards food/nutrition NIPCCD, CARE, FAO, NIN, CFTRI (Central food technology & research institute) etc. Assessment of nutritional status Nutrition education and role of nurse	At the end of unit students will known about nutritional programme

Biochemistry

Theory – 30 hours

Unit	Learning Objective	Content	Outcome
I	Describe the structure Composition and functions of cell Differentiate between Prokaryote and Eukaryote cell Identify techniques of Microscopy	Introduction: Definition and significance in nursing. Review of structure, Composition and functions of cell. Prokaryote and Eukaryote cell organization Microscopy	At the end of unit students will able to known about differentiation between prokaryote & eukaryote cell
Unit	Learning Objective	Content	Outcome
II	Describe the Structure and functions of Cell membrane	Structure and functions of Cell membrane Fluid mosaic model tight junction, Cytoskeleton Transport mechanism: diffusion, osmosis, filtration, active channel, sodium pump. Acid base balance maintenance & diagnostic tests. PH buffers	At the end of unit students will able to understand about structure & functions of cell membrane
Unit	Learning Objective	Content	Outcome
III	Explain the metabolism of carbohydrates	Composition and metabolism of carbohydrates Types, structures, composition and uses. o Monosaccharides , Disaccharide Polysaccharides, Oligosaccharides Metabolism Pathways of glucose : - Glycolysis - Gluconeogenesis : Cori's cycle, Tricarboxylic acid (TCA) cycle - Glycogenolysis - Pentose phosphate pathways (Hexose mono phosphate) o Regulation of blood glucose level Investigations and their interpretations	At the end of unit students will able to gain knowledge about carbohydrates in detail
Unit	Learning Objective	Content	Outcome
IV	Explain the metabolism of Lipids	Composition and metabolism of Lipids Types, structure, composition and uses of fatty acids o Nomenclature, Roles and	At the end of unit students will able to known about composition & metabolism of lipids

		Prostaglandins Metabolism of fatty acid o Breakdown o Synthesis Metabolism of triacylglycerols Cholesterol metabolism o Biosynthesis and its Regulation - Bile salts and bilirubin - Vitamin D - Steroid hormones Lipoproteins and their functions : o VLDLs-IDLs, LDLs and HDLs o Transport of lipids o Atherosclerosis Investigations and their interpretations.	
Unit	Learning Objective	Content	Outcome
V	\ Explain the metabolism of Lipids	Composition and metabolism of Amino acids and Proteins Types, structure, composition and uses of Amino acids and Proteins Metabolism of Amino acids and Proteins o Protein synthesis, targeting and glycosylation Chromatography Electrophoresis Sequencing Metabolism of Nitrogen Fixation and Assimilation Urea Cycle Hemes and clorophylls Enzymes and co-enzymes Classification Properties Kinetics and inhibition Control Investigations and their interpretations	At the end of unit students will able to understand about composition &metabolism of proteins, aminoacids
Unit	Learning Objective	Content	Outcome
VI	Describe types, composition and utilization of Vitamins & minerals	Composition of Vitamins and minerals Vitamins and minerals: Structure Classification Properties Absorption Storage & transportation Normal concentration	At the end of unit students will able to gain knowledge about vitamins & minerals

		Investigations and their interpretation	
Unit	Learning Objective	Content	Outcome
VII	Describe Lmmuno chemistry	Immunochemistry Immune response, Structure and classification of immunoglobins Mechanism of antibody production. Antigens: HLA typing. Free radical and Antoxidants. Specialised Protein : Collagen, Elastin, Keratin, Myosin, Lens Protein. Electrophoretic and Quantitative determination of immunoglobins - ELISA etc. Investigation and their interpretations.	At the end of unit students will able to learn about immunochemistry in depth

