

Subject Code: 1NR1010102	Subject Title: NUTRITION AND BIOCHEMISTRY
Pre-requisite	-----NA-----

Course Description

The course is designed to enable students to acquire knowledge of the normal structure of various human body systems and understand the alterations in anatomical structures in disease and practice of nursing.

Teaching Scheme (Total Hours)				Evaluation Scheme (Marks)				
Lecture	Tutorial	Practical	Total Hours	Theory		Practical		Total
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
70	-	20	90	75	25	-	-	100

Course Content:

Unit	Time (Hrs)		Learning Objectives	Content	Teaching Learning Activities	Assessment methods
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I	4		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 and nutrition: socio – economic, cultural, tradition, production, system of distribution, life style and food habits etc. - Role of foods and its medicinal value - Classification of foods - Food standards - Elements of nutrition: macro and micro - Calorie, BMR	- Lecture discussion - Explaining using charts - Panel discussion	- Short answer questions - Objective type
II	2		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	- Lecture discussion - Explaining using charts	- Short answer questions - Objective type

				Malnutrition: Deficiencies and Over consumption		
III	2		Describe the classification, functions, sources and recommended daily allowances (RDA) of Fats	Fats - Classification - Caloric value - Recommended allowances daily - Dietary sources. - Functions. - Digestion, absorption and storage, metabolism - Malnutrition: Deficiencies and Over consumption	- Lecture discussion - Explaining using charts	- Short answer questions - Objective type
IV	2		Describe the classification, functions, sources and recommended daily allowances (RDA) of proteins.	Proteins - Classification - Caloric value - Recommended allowances daily - Dietary sources. - Functions. - Digestion, absorption and storage, metabolism - Malnutrition: Deficiencies and Over consumption	- Lecture discussion - Explaining using charts	- Short answer questions - Objective type
V	3		Describe the daily calorie requirement for different categories of people	Energy - Unit of Energy – Kcal - Energy requirements of different	- Lecture discussion - Explaining using charts - Exercise - Demonstration	- Short answer questions - Objective type
VI	4		Describe the classification, functions, sources and recommended daily allowances (RDA) of Vitamins	Vitamins - Classification - Recommended allowances daily - Dietary sources. - Functions. - Absorption, synthesis, metabolism storage and excretion - Deficiencies - Hypervitaminosis	- Lecture discussion - Explaining using charts	- Short answer questions - Objective type
VII	4		Describe the classification, functions, sources and recommended daily allowances	Minerals - Classification - Recommended allowances daily - Dietary sources. - Functions.	- Lecture discussion - Explaining using charts	- Short answer questions - Objective type

			(RDA) of minerals	- Absorption, synthesis, metabolism storage and excretion - Deficiencies - Over consumption and toxicity		
VIII	3		Describe the sources , functions, and requirements of Water & electrolytes	Water & electrolytes - Water: Daily requirement, 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	- Lecture discussion - Explaining using charts	- Short answer questions - Objective type
IX	5	15	Describe the Cookery rules and preservation of nutrients Prepare and serve simple beverages and 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 standards - Preparation of simple beverages and different types of food	- Lecture discussion - Demonstration - Practice session	- Short answer questions - Objective type - Assessment of practice sessions
X	5	15	Describe and plan balanced diet for different categories of people	Balanced diet - Elements - Food group - Recommended Daily Allowance - Nutritive value of foods - Planning menu - Budgeting of food - Introduction to therapeutic diets: Naturopathy	- Lecture discussion - Explaining using charts - Practice session - Meal planning	- Short answer questions - Objective type - Exercise on menu planning
XI	4		Describe various national programmes related to nutrition Describe the	Role of Nurse in nutritional programmes - National programmes related to nutrition - Vitamin A deficiency programme - National iodine deficiency disorders (IDD) programme	- Lecture discussion - Explaining with - Slide/Film shows - Demonstration of	- Short answer questions - Objective type

			role of nurse in assessment of nutritional status and nutrition education	• 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 and research institute) etc • Assessment of nutritional status • Nutrition education and role of nurse	assessment of nutritional status	
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BIOCHEMISTRY

Course Description: The course is designed to assist the students to acquire knowledge of the normal biochemical composition and functioning of human body and understand the alterations in biochemistry in diseases for practice of nursing.

Course Content

Unit	Time (Hrs)	Learning Objectives	Content	Teaching Learning Activities	Assessment methods
I	3	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	• Lecture discussion using charts, slides • Demonstrate use of microscope	• Short answer questions • Objective type
II	6	Describe the Structure and function of Cell membrane	Structure and functions of cell members • Fluid mosaic model tight junction, Cytoskeleton • Transport mechanism: diffusion, osmosis, filtration, active channel, sodium pump • Acid base balance – maintenance & diagnostic tests • PH buffer	• Lecture discussion	• Short answer questions • Objective type
III	6	Explain the metabolism of carbohydrates	Composition and metabolism of Carbohydrates • Types, structure, composition and use	• Lecture discussion • Demonstration of blood	• Short answer questions • Objective type

			• Monosaccharide, Disaccharides, Polysaccharides, Oligosaccharides • Metabolism • Pathways of glucose: - Glycolysis - Gluconeogenesis: Cori's cycle, Tricarboxylic acid (TCA) cycle - Glycogenolysis - Pentose phosphate pathways (Hexose mono phosphate) • Regulation of blood glucose level Investigations and their interpretations	glucose monitoring	
IV	4	Explain the metabolism of Lipids	Composition and metabolism of Carbohydrates • Types, structure, composition and uses of fatty acids • Nomenclature, Roles and Prostaglandins • Metabolism of fatty acid • Breakdown • Synthesis • Metabolism of triacylglycerols • Cholesterol metabolism • Biosynthesis and its Regulation • Bile salts and bilirubin • Vitamin D • Steroid hormones	• Lecture discussion using charts • Demonstration of laboratory tests	• Short answer questions • Objective type
V	6	Explain the metabolism of Amino acids and Proteins	Composition and metabolism of Amino acids and Proteins • Types, structure, composition and uses of Amino acids and Proteins • Metabolism of Amino acids and Proteins • Protein synthesis, targeting and glycosylation • Chromatography • Electrophoresis • Sequencing • Metabolism of Nitrogen • Fixation and Assimilation • Urea Cycle • Hemes and chlorophylls • Enzymes and co-enzymes • Classification • Properties	• Lecture discussion using charts • Demonstration of laboratory tests	• Short answer questions • Objective type

			• Absorption • Storage & transportation • Normal concentration • Investigations and their interpretations		
VI	2	Describe types, composition and utilization of Vitamins & minerals	Composition of Vitamins and minerals • Vitamins and minerals : • Structure • Classification • Properties • Absorption • Storage & transportation • Normal concentration • Investigations and their interpretations	• Lecture discussion using charts • Demonstration of laboratory tests	• Short answer questions • Objective type
VII	3	Describe Immunochemistry	Immunochemistry • Immune response, • Structure and classification of immunoglobins • Mechanism of antibody production • Antigens : HLA typing • Free radical and Antioxidants • Specialized Protein: Collagen, Elastin, Keratin, Myosin, Lens Protein. • Electrophoretic and Quantitative determination of immunoglobins – ELISA etc. • Investigations and their interpretations	• Lecture discussion using charts • Demonstration of laboratory tests	• Short answer questions • Objective type

