Course Title	**Clinical Nutrition and Metabolism**				
Course Code	MD260				
Course Type	Elective				
Level	1st Cycle (MD)				
Year / Semester	2nd Year / 3nd Semester				
Teacher's Name	TBA				
ECTS	3	Lectures / week	1 hr / 14 weeks	Laboratories / week	0 hr / 14 weeks
Course Purpose and Objectives	• The objective of the course is to familiarize the students with the Molecular bioavailability, metabolism, storage and biosynthesis of micro and macro molecules and the regulation of their pathways. • Description of the biochemical basis of inherited disorders with their associated sequelae of various metabolisms. • Description of blood and urine metabolites and their importance in health and disease.				
Learning Outcomes	Upon successful completion of this course students should be able to: • Analyze laboratory data of routine biochemical investigations by conducting selected special investigations for solving clinical problems. • Demonstrate communication skills and professionalism with a sense of responsibility. • Demonstrate ability to work cooperatively in team • Learn and describe the role of Vitamins • Calculate the energy requirements • Discuss the mineral metabolism • Nutritional importance of carbohydrates, proteins and lipids • Overview carbohydrate and associated disorders • Overview of protein metabolism and associated disorders. • Overview of lipid metabolism and associated disorders. • Overview of nucleotide metabolism and associated disorders. **Describe and discuss** • Diabetes mellitus & its diagnosis • Prostaglandins • Clinical Nutrition • Regulation of blood sugar • Obesity • Diagnostic importance of plasma proteins • Vitamin B- Complex				
	• Calcium Homeostasis • Metabolic interrelationships				

	• Calculation of BMR for normal and abnormal individuals **Laboratory** • Estimation of serum cholesterol • Estimation of inorganic phosphate • Estimation of total proteins and albumin • Paper Chromatography • Estimation of Uric acid • Electrophoresis of plasma proteins • Extraction of Metabolites • Analysis of metabolite levels in biological samples using mass spectrometry		
Prerequisites	None	Co-requisites	None
Course Content	• Fat soluble and water soluble vitamins • Nutritional importance of carbohydrates & dietary fibers • Carbohydrate metabolism (sugars) • Nutritional importance of proteins & PEM • Amino acids metabolism and disorders • Estimation of total proteins and albumin • Diagnostic importance of proteins • GTT, glycosuria, glycemia, diabetes • Nutritional importance of lipids • Inborn Errors Of Carb Metabolism, Glycogen Storage Disorders • Urea cycle & disorders • Metabolism of lipids and disorders • Complex lipid metabolism & disorders • Alkaptonuria, Homocysteinuira & disorders • Disorders of nucleotide metabolism • Nutritional importance of lipids & LDL,HDL • Bile acids • Estimation of serum cholesterol • Estimation of inorganic phosphate • BMR • Paper Chromatography		
Teaching Methodology	Face-to-face		
Bibliography	Berdanier CD, Zempleni J, *Advanced Nutrition: Macronutrients, Micronutrients, and Metabolism* CRC Textbook of Biochemistry with Clinical Correlations; Devlin, Thomas M.; 978-0470281734; John Wiley;		

	Biochemistry: International Edition; Berg, J.M. / Tymoczko, J.L.; 978-1429276351; W. H. Freeman; Study Guide for Chemistry: An Introduction to General, Organic, and Biological Chemistry; Karen C. Timberlake; 978-0697250032; Prentice Hall; Clinical Biochemistry: Metabolic and Clinical Aspects; Marshall William; 978-0443101861; Churchill Livingstone; Lehninger Principles of Biochemistry; David L. Nelson; 978-1429208925; W. H. Freeman; Harpers Illustrated Biochemistry; Harper, H./Robert, K. Murray;; 978-0071765763; McGraw-Hill;
Assessment	Examinations: 70% Assignment/Lab 20% Class Participation: 10%
Language	English