(Master of Science) (Biochemistry)
(M.Sc.) (Biochemistry) Semester (II)

Course Code	PS02EBIC22	Title of the Course	Medical Biochemistry
Total Credits of the Course	04	Hours per Week	03

Course Objectives:	Students should be able to : (1) Apply biochemical knowledge in normal & diseased states. (2) Have knowledge regarding the analysis of biological fluids for its chemical constituents & correlating the same in health& disease. (3) Advanced integrated knowledge and understanding of biochemistry behind various diseases

Course Content		
Unit	Description	Weightage* (%)
1.	Diagnostic Enzymes: Serum Enzyme in heart disease, GI tract disease, muscle disease, bone diseases and in Malignancy, Clinical importance of Isoenzyme- Creatinine kinase and lactate dehydrogenase, Alkaline phosphatise Mineral metabolism and its Disorders: Calcium and Iron- Mechanism of absorption, storage and transport, Factors affecting its homeostasis, associated abnormality. Vitamins A, D, B_{12} C: Dietary sources, biochemical functions and specific deficiency diseases	25
2.	Types of Hemoglobins, Haemoglobinopathies (sickle cell anaemia and Thalassemias), and Catabolism of Heme, Jaundice and its type Organ function tests: Pancreatic function tests, Test for gastric function, Composition of gastric juice, concepts of free and bound acid, renal function tests, Liver function test, diagnosis of Birth Defects Tissue protein and diseases: Biosynthesis and types of collagen, disorders of collagen, Skin disorder (Albinism)	25
3.	Cardiovascular Diseases- Mechanism of Atherosclerosis, Risk factors and Lipid profile, Types of Hypertension and its Mechanism Neurological Disorders – Biochemical mechanism of Epilepsy, Alzheimer's disease, Parkinson Disease Biochemistry of Cancer – Properties of Cancer cell, Etiology of Cancer, Mechanism of carcinogenesis, Mechanism of Metastasis, Most commonly used tumor Markers. Biochemistry of AIDS: Structure of HIV virus and its genes, Course of Infection, Laboratory analysis	25

4.	Human microbiota and their role in human health, Host-pathogen interaction, opportunistic microorganisms, Infection – types of infection, method of infection, factors influencing infection. Spread of infectious diseases, Respiratory tract infection- Tuberculosis, corona virus disease; Food poisoning: Biochemistry of Cholera—Vibrio Toxins, Pathogenesis	25

Teaching-Learning Methodology	Topics will be taught and discussed in interactive sessions using conventional black board and chalk as well as ICT tools such as power point presentations and videos. Practical sessions will be conducted in a suitably equipped laboratory either individually or in groups depending on the nature of exercise as well as availability of infrastructure. Course materials will be provided from primary and secondary sources of information.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Suggest, evaluate, interpret Biochemical investigation in a given clinical situation and apply knowledge in clinical problems.

Suggested References:	
Sr. No.	References
1.	Dr (Brig) MN Chatterjea and Rana Shinde, Textbook of Medical Biochemistry; (Eight Edition), JAYPEE BROTHERS MEDICAL PUBLISHERS (P) LTD

2.	D.M. Vasudevan and Sreekumari, S, Textbook of Biochemistry for Medical Students: 6th Edition, 2010, Jaypee Brothers Medical Publishers, New Delhi.
3.	William J. Marshall & Stephen K. Angert, Clinical Biochemistry- Metabolic and Clinical aspects
4.	Carl A. Burtis and Edward R. Ashwood, eds. Tietz Textbook of Clinical Chemistry, Third Edition.
5.	Dinesh Puri , Textbook of Medical Biochemistry (3rd ed.)

On-line resources to be used if available as reference material
On-line Resources
Related review articles and research papers