SEMESTER: 1st - 3rd

CLINICAL BIOCHEMISTRY

MULTIDISCIPLINARY COURSE

CBC025I: CLINICAL BIOCHEMISTRY _ FUNDAMENTALS OF CLINICAL BIOCHEMISTRY

Credits: 03

Objectives and Expected Learning Outcomes:

This course introduces the fundamentals of clinical biochemistry, emphasizing its diagnostic relevance and the safe handling of biological samples. It covers the interpretation of liver and kidney function tests, along with key hematological parameters. Students will also gain foundational knowledge of blood composition, CBC analysis, and blood grouping principles.

Unit I - Introduction to Clinical Biochemistry

History and scope of Clinical Biochemistry. Types of Samples and Sample Collection: Blood, Urine & Cerebrospinal Fluid. Laboratory hazards and safety. Tube Additives and labelling

Unit II – Organ Function: Assessment and Clinical Significance

Functions of Liver, Liver Function Tests: reference ranges and clinical significance; Functions of Kidney. Kidney function tests: reference ranges and clinical significance

Unit III - Hematology

Composition of Blood: Plasma, Cells and platelets, Concept of serum and plasma as samples in clinical testing, Complete Blood Count including Haematocrit (Packed Cell Volume), Red Cell Indices (MCV, MCH, MCHC): Reference ranges and clinical interpretation, Blood Grouping and Rh System

Recommended Books:

1. Tietz, N.W. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 5th Edition. St. Louis, MO: Elsevier/Saunders.
2. Kawthalkar, S.M. Essentials of Clinical Pathology. 2nd Edition. New Delhi: The Health Sciences Publisher.
3. Varley, H., Gowenlock, A.H., & Bell, M. Practical Clinical Biochemistry. 10th Edition. New Delhi: CBS Publishers & Distributors Pvt. Ltd.