

FYUGP CURRICULAR FRAMEWORK FOR CLINICAL BIOCHEMISTRY AS MAJOR FOR 2023 & ONWARDS

SEMESTER	COURSE CODE	COURSE TYPE	COURSE TITLE	CREDITS	
				THEORY	PRACTICALS
I	CBC123J	CT-I	CLINICAL BIOCHEMISTRY: FUNDAMENTALS OF CLINICAL BIOCHEMISTRY	4	2
II	CBC223J	CT-I	CLINICAL BIOCHEMISTRY: CLINICAL PHYSIOLOGY AND DIAGNOSTICS-I	4	2
III	CBC322J	CT-I	CLINICAL BIOCHEMISTRY: CLINICAL PHYSIOLOGY AND DIAGNOSTICS-II	4	2
IV	CBC422J1	CT-I	CLINICAL BIOCHEMISTRY: CELL BIOLOGY AND ASSOCIATED DISORDERS	3	1
	CBC422J2	CT-II	CLINICAL BIOCHEMISTRY: CELL BIOLOGY AND ASSOCIATED DISORDERS	4	2
	CBC422J3	CT-III	CLINICAL BIOCHEMISTRY: BIOMOLECULES: METABOLISM AND CLINICAL RELEVANCE-I	4	2
V	CBC522J1	CT-I	CLINICAL BIOCHEMISTRY: IMMUNOLOGY AND IMMUNOPATHOLOGY	3	1
	CBC522J2	CT-II	CLINICAL BIOCHEMISTRY: CELL SIGNALING AND DISORDERS	4	2
	CBC522J3	CT-III	CLINICAL BIOCHEMISTRY: BIOMOLECULES: METABOLISM AND CLINICAL RELEVANCE-II	4	2
VI	CBC622J1	CT-I	CLINICAL BIOCHEMISTRY: MOLECULAR DIAGNOSTICS	3	1
	CBC622J2	CT-II	CLINICAL BIOCHEMISTRY: BIOANALYTICAL TECHNIQUES AND INSTRUMENTATION	4	2
	CBC622J3	CT-III	CLINICAL BIOCHEMISTRY: MOLECULAR BIOLOGY	4	2
HONOURS MODE					
VII	CBC722J1	CT-I	CLINICAL BIOCHEMISTRY: CLINICAL PATHOLOGY	3	1
	CBC722J2	CT-II	CLINICAL BIOCHEMISTRY: ORGAN SYSTEM AND ASSOCIATED DISORDERS –I	4	2
	CBC722J3	CT-III	CLINICAL BIOCHEMISTRY: ENZYMES: FUNCTION, REGULATION AND DIAGNOSTICS	4	2
VIII	CBC822J1	CT-I	CLINICAL BIOCHEMISTRY: MATERNAL AND FETAL HEALTH	3	1
	CBC822J2	CT-II	CLINICAL BIOCHEMISTRY: ORGAN SYSTEM AND ASSOCIATED DISORDERS – II	4	2
	CBC822J3	CT-III	CLINICAL BIOCHEMISTRY: MEDICAL GENETICS	4	2
HONOURS WITH RESEARCH MODE					
VII	CBC722J1	CT-I	CLINICAL BIOCHEMISTRY: CLINICAL PATHOLOGY	3	1
	CBC722J2	CT-II	CLINICAL BIOCHEMISTRY: ORGAN SYSTEM AND ASSOCIATED DISORDERS –I	4	2
	CBC722J3	CT-III	CLINICAL BIOCHEMISTRY: ENZYMES: FUNCTION, REGULATION AND DIAGNOSTICS	4	2
VIII	CBC822J1	CT-I	CLINICAL BIOCHEMISTRY: MATERNAL AND FETAL HEALTH	3	1
	CBC822RP	CT-II	CLINICAL BIOCHEMISTRY: PROJECT WITH DISSERTATION	12	

BACHELORS WITH CLINICAL BIOCHEMISTRY AS MAJOR

1st SEMESTER

CBC123J: CLINICAL BIOCHEMISTRY _ FUNDAMENTALS OF CLINICAL BIOCHEMISTRY

CREDITS: THEORY: 4; PRACTICAL: 2

OBJECTIVES AND EXPECTED LEARNING OUTCOMES

The course is designed to give a general insight into clinical biochemistry as a subject and to acquaint the students with the basic ethics of laboratory, essentials of lab management, quality control and impart awareness about hazards and safety measures in the clinical laboratory. The students will also learn about basics of specimen collection and handling for diagnostic investigations.

(THEORY: 4 CREDITS)

UNIT-1 INTRODUCTION TO CLINICAL BIOCHEMISTRY (15 HOURS)

History and scope of clinical biochemistry, Basic concept of core laboratories, Point of care testing, Automation in clinical laboratories, Ethics of laboratory practice

UNIT-2 QUALITY CONTROL (15 HOURS)

Quality control in clinical biochemistry-Pre-analytical, analytical and post-analytical, Internal and external quality control, Quality control charts, Measures of diagnostic accuracy-precision, accuracy, sensitivity, specificity and predictive values

UNIT-3 LABORATORY HAZARDS AND SAFETY (15 HOURS)

Laboratory hazards- Biological, chemical, radiation and fire hazards; Bio-safety in clinical laboratory- biological safety, chemical safety and radiation safety, Safety equipments, Disposal of hazardous materials

UNIT-4 BODY FLUIDS AND SPECIMENS (15 HOURS)

Specimen collection of blood, urine, feces and other body fluids, Tube additives for blood- usage and mechanism, Handling of specimens- preservation, storage and transport, Pre-analytical variations, Concept of reference values

PRACTICAL (2 CREDITS: 60 HOURS)

1. Biochemical calculations- Molarity, molality, normality and percent solution
2. Preparation of standard buffers and determination of pH of solution
3. Working, principle and maintenance of common laboratory equipments
4. Methods of collection and preservation of blood samples- Colour coding of tubes
5. Fractionation of blood samples

RECOMMENDED BOOKS:

1. Teitz, Fundamentals of Clinical chemistry and Molecular Diagnostics by Nader Rifai. Publisher: Elsevier Publications
2. Clinical Chemistry: Techniques, Principles, Correlations by Michael L. Bishop, Edward P. Fody, Larry E. Schoeff. Publisher: Lippincot Williams & Wilkins
3. Henry's Clinical Diagnosis Management by Laboratory medicine by Richard McPherson, Matthew Pincus. Publisher: Elsevier Publications
4. Medical Laboratory Science · Theory And Practice by J Ochei and A Kolhatka. Publisher: Mc Graw Hill