DEPARTMENT OF BIOTECHNOLOGY				*CLASS: II B.Sc. Biotechnology*				
Sem	**Course Type**	**Course Code**	**Course Title**	**Credits**	**Contact Hours/week**	**CIA**	**Ext**	**Total**
III & IV	Self-learning	21U4LSS1	Medical Biochemistry	2		50	50	100

Course Objectives

1	To understand the biochemical concept underlying the cause of disease.
2	To provide students with basic understanding about the clinical analysis related to disorders
3	To make the students aware of various inherited disorders of metabolism.

Unit 1 Introduction

Role of biochemistry in day today life. Blood and coagulation - disturbances of blood clotting mechanisms - systematic analysis of haemorrhagic disorders - coagulation and prothrombin time, determination - haemoglobin- their derivatives of haemoglobin- combination of haemoglobin with gases- anaemia - abnormal haemoglobins and haemoglobinopathies- Thalassemia's.

Unit 2 Clinical Enzymology

Laboratory investigations on serum and Urine for constituents (normal & abnormal) of diagnostic and prognostic importance. Plasma specific and non plasma specific enzymes of diagnostic prognostic importance and their interpretation of amylase, aminotransferase, phosphatase, creatinine kinase, cholinesterase, lactate dehydrogenase, phosphohexoisomerase, lipoprotein lipase.

Unit 3 Disorders of carbohydrates metabolism

Glucose level in normal blood, renal threshold, hyper and hypoglycaemia and glycosuria - qualitative tests for sugars in urine - intravenous and other types of glucose tolerance tests - fructose levels in blood lab diagnosis of early and latent diabetes mellitus - diabetic coma, secondary degenerative changes associated with diabetes mellitus - Glycogen storage disorders.

Unit 4 Disorders of nitrogen&Lipid metabolism

Assimilation and excretion of nitrogen with reference to ammonia, urea, uric acid, creatine, creatinine - excretion of nitrogenous waste products - abnormalities of nitrogen metabolism including uremia, porphyrias, porphyrinurias, and aminoaciduria - factors affecting nitrogen balance. Lipid metabolism disorders Plasma lipoproteins, cholesterol triglycerides and phospholipids in health and diseases, ketosis, fatty liver. Inherited disorders- Refsum's disease,zellweger's syndrome, Jamaican vomiting sickness.Hyperlipoproteinaemias and Hypolipoproteinaemias- Antherosclerosis.

Unit 5 Inherited disorders of metabolism

Changes occurring in phenyl ketonuria, alkaptonuria, tyrosinosis, albinism, Hartnup's disease, galactosemia.Tay-Sach's disease, Niemann Pick's disease and Hunter's syndrome,lesch-nyhan syndrome syndrome - detection of these anomalies.

Books for reference

1. David Martin et al. 2018. Harper's Review of Biochemistry Lange Medical Publications
2. Chatterjea MN and Shinde R. 2012. Textbook of Medical Biochemistry. Jaypee Brothers Medical Publishers (P) Ltd.