3.	Skoog, D.A., Crouch, S.R., and Holler, F.J. "Principles of Instrumental Analysis", 6th edition, Brooks/Cole, USA. (2006)
4.	Keith Wilson and John Walker, "Principles and Techniques of Practical Biochemistry", 5th Edition, Cambridge University Press. (2000)
5.	Freifelder D., Physical Biochemistry, "*Application to Biochemistry and Molecular Biology*", 2nd Edition, W.H. Freeman & Company, San Fransisco. (1982)

CLINICAL BIOTECHNOLOGY

Details of course: -

Course Title	Course Structure			Pre-Requisite
	L	T	P	
Clinical Biotechnology (BT415)	3	0/1	2/0	Nil

Course Objective:

To understand clinical biotechnology and diagnostics.

Course Outcome (CO):	
1.	Identify basic principles of photometry and fluorometry and understanding the water & mineral metabolism distribution of fluids in the body.
2.	Functions & assessment of Liver based on carbohydrate metabolism, Protein metabolism, lipid metabolism, measurements of serum enzyme levels, bile pigment metabolism and jaundice.
3.	Analyse and application of Immunodiffusion Techniques like radioimmunoassay & ELISA principles & applications.
4.	Outline the principle, types & applications of electrophoresis & PCR.
5.	Identify cardiac profile Pattern of Cardiac Enzymes in heart diseases.
6.	Explain principal advantage and disadvantage of different methods Different methods of Glucose and Cholesterol Estimation.

S.No.	Content	Contact Hours
1.	**Basic Principles:** Photometry and fluorometry, Water & Mineral Metabolism Distribution of fluids in the body,	7
2.	**Liver Functions & their Assessment.** Based on Carbohydrate metabolism, Protein metabolism, Lipid metabolism, Measurements of serum enzyme levels, Bile pigment metabolism, Jaundice, its types and their biochemical findings. Renal Function Tests,	6

3.	**Immunodiffusion Techniques:** Radioimmunoassay & ELISA Principles & Applications.	7
4.	**Electrophoresis & PCR**- Principle, Types & Applications	8
5.	**Cardiac Profile -** In brief Hypertension, Angina, Myocardial Infarction, Pattern of Cardiac Enzymes in heart diseases	8
6.	**Different methods of Glucose and Cholesterol Estimation** Principal advantage and disadvantage of different methods	6
	Total	42

Books: -

S.No.	**Name of Books/ Author/Publisher**
1.	Bailey and Scott's Diagnostic Microbiology, 13th ed Patricia M. Tille (2015)
2.	Clinical Biochemistry 5th edition, Allan Gaw & Michael J. Murphy & Rajeev Srivastava & Robert A. Cowan & Denis St. J. O'Reilly (2014)
3.	Fundamentals of Clinical Trials 4th edition, Springer Lawrence Friedman (2010)
4.	Molecular Biology of the Cell by B. Alberts et al. 6th ed. Garland Science (2015)
5.	Medical Microbiology, 4th edition (1996)

PLANT METABOLIC ENGINEERING

Details of course: -

Course Title	**Course Structure**			**Pre-Requisite**
	L	**T**	**P**	
Plant Metabolic Engineering (BT417)	3	0/1	2/0	Nil

Course Objective:

Plant metabolic engineering principles

Course Outcome (CO):