

**PG DMLT Semester I**
**Subject Name: Lab 1 (L1)**
**Subject Code: 02ML0105**

**Objective:** To train students with the experimental and analytical aspects of clinical biochemistry, pathology, hematology and human anatomy.

**Credits Earned:** 6 Credits

**Course Outcomes: After the completion of the course:**

1. Students will become aware of the clinical laboratory environment and standard laboratory practices.
2. Students will be trained in handling analytical instruments and solution preparation.
3. Students will be able to independently handle and analyse clinical samples with various experiments.
4. Students will gain expertise in analysis, interpretation and conclusion of clinical test results.

**Pre-requisite of course:** Fundamental knowledge of qualitative and quantitative techniques used in Biochemistry.

**Teaching and Examination Scheme**

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	IA (M)	CSE (I)	Viva (V)	Practical/ TW	
0	0	12	6	0	0	0	100	100	200



**Content:**

Module	List of Experiments	Contact Hours
1.	<b>Clinical Biochemistry</b> 1. To study general laboratory safety rules. 2. Demonstration of glassware, apparatus and plasticware used in the laboratory. 3. To prepare solutions of various measures of concentration. 4. Demonstration of parts and working of laboratory instruments. 5. To perform Thin Layer Chromatography (TLC) on a given sample. 6. To perform the estimation of calcium and iron in blood sample. 7. To perform estimation of vitamin D in blood sample. 8. To perform quantitative estimation of carbohydrates. 9. To perform quantitative estimation of proteins. 10. To Examine blood cholesterol levels and lipid profile.	45
2	<b>Basic Haematology</b> 1. To perform blood collection ( phlebotomy) and its storage. 2. To perform the estimation of Haemoglobin. 3. To perform blood grouping on a given sample. 4. To study different parts and working of a microscope. 5. To perform total leucocytes count (TLC) and differential leucocytes count (DLC). 6. To determine the Erythrocyte Sedimentation Rate (ESR) from a given sample. 7. To determine packed cell volume (PCV)/ Haematocrit value. 8. To perform various staining techniques in Haematology: (i) Giemsa stain (ii) Leishman stain (iii) Wright's stain (iv) Field's stain (v) JSB stain. 9. To perform Phenylketonuria and alkaptonuria test.	45
3.	<b>Basic and Clinical Pathology</b> 1. To perform urine analysis. 2. To perform semen analysis. 3. To perform examination of sputum. 4. To perform analysis of Skin microflora. 5. To perform analysis of oral microflora. 6. To perform the detection of the malaria parasite in blood. 7. To Perform Dengue test. 8. To perform the Pregnancy test	45
4	<b>Human Anatomy and Physiology</b> 1. To study various components of the human skeleton 2. To study different systems with the help of charts and models. 3. To perform microscopic examination of different tissues. 4. To record body temperature, pulse rate and blood pressure 5. Demonstration of Radiological Anatomy. 6. To understand the Electrocardiogram (ECG).	45
	Total	180