Medical Laboratory Technology Laboratory

Medical Laboratory Technology Laboratory is an important academic and practical training facility that provides students with fundamental knowledge and hands-on experience in laboratory investigations, diagnostic procedures, and clinical laboratory techniques. The laboratory is established to bridge the gap between theoretical learning and practical application by familiarizing students with various laboratory instruments, diagnostic equipment, specimen handling procedures, and basic laboratory investigations.

The laboratory is equipped with essential instruments such as a semi-automated biochemistry analyser, photoelectric colorimeter, binocular microscope, digital pH meter, vortex mixer, hot plate, water bath, incubator, autoclave, hot air oven, and laminar airflow chamber. These instruments support practical demonstrations and training in biochemical analysis, microscopic examination, sample preparation, sterilization techniques, and basic laboratory procedures.

Students gain exposure to the principles and applications of clinical biochemistry, hematology, microbiology, pathology, and diagnostic laboratory practices. They develop an understanding of blood and other biological sample analysis, biochemical parameters, laboratory safety, infection control, sterilization, and quality assurance procedures.

The laboratory also emphasizes the importance of accurate laboratory investigations in identifying diseases, monitoring patient health, evaluating treatment outcomes, and supporting clinical decision-making. Practical training helps students understand the relationship between laboratory findings and patient conditions, which is essential for effective healthcare delivery.

Objectives of the Laboratory

- To provide fundamental knowledge of clinical biochemistry and medical laboratory technology.
- To familiarize students with various laboratory instruments and their applications.
- To develop practical skills in handling biological specimens and laboratory materials.
- To introduce students to basic biochemical and diagnostic investigations.
- To understand the principles of microscopy, colorimetry and biochemical analysis.
- To demonstrate appropriate sterilization and disinfection procedures.
- To promote laboratory safety, infection prevention and control practices.
- To develop observation, analytical and interpretation skills.
- To create awareness about quality control and accuracy in laboratory testing.
- To understand the clinical significance of laboratory investigations in patient management.

S.NO	Equipment photo	Equipment Name	Specialization
1.		Vortex Mixer	Used for mixing laboratory samples, solutions and reagents in test tubes through rapid circular motion.
2.		Hot Plate	Used for heating laboratory solutions, chemicals and samples at controlled temperatures
3.		Water Bath	Used for maintaining samples and reagents at a constant temperature for incubation and laboratory procedures.
4.		Incubator	Used for maintaining controlled temperature conditions for the growth and incubation of microorganisms and biological samples.

5.		Photoelectric Colorimeter	Used for measuring the concentration of coloured solutions by determining light absorption
6.		Binocular Microscope	Used for microscopic examination of bloodcells, tissues,microorganisms and biological specimens.
7.		Autoclave	Used for sterilization of laboratory instruments,and glassware and culture media
8.		Hot Air Oven	Used for dry-heat sterilization of glassware, metal instruments and laboratory materials.
9.		Digital pH Meter	Used for measuring the pH and acidity alkalinity of laboratory solutions.

10.		Semi-Automated Biochemistry Analyzer	Used for biochemical investigations such as glucose,urea, creatinine, cholesterol and liver function tests.
11.		Laminar Air Flow Chamber	Used to provide a clean working environment for aseptic handling of samples and preparation of culture media.