

## **MEDICAL LABORATORY TECHNOLOGY**

### **Objectives: Medical Laboratory Technology student should**

- a) Undergo training in all fields of laboratory medicine (Biochemistry, Microbiology, Pathology and Blood bank departments respectively)
- b) Collect and prepare the sample
- c) Handle fully automated analysers
- d) Understand and perform special stains and smears
- e) Understand and perform basic cytology and haematology procedures
- f) Perform grossing, cutting & staining procedures in histopathology
- g) Counsel and screen the Donars and prepare the blood components
- h) Perform Quality control procedures
- i) Effectively use of HIS/LIS
- j) Maintain log books and registers

### **Outcome: After completing three years of Medical Laboratory Technology course, the graduate should be able to**

- a) Work efficiently in medical laboratories in India and abroad
- b) Work under different specialities of Laboratory Medicine (Biochemistry, Microbiology, Pathology and Blood bank departments respectively)
- c) Work and contribute in NABL accreditation program.

### **Training provided**

#### **BIOCHEMISTRY**

##### **1. General**

- Sample Collection
- Sample receiving using Hospital Information System/Lab information system and sample preparation for analysis.
- Sample Rejection Criteria
- Sample storage and disposal
- Practical aspects of Quality control
- Lab Safety Protocols.
- Biomedical waste management.

##### **2. Hands on training and exposure under supervision**

- Routine chemistry tests
- Hormonal assays
- Tumour marker assays
- Electrolyte and ABG analysis

- Running of protein and Hb Electrophoresis
- 3. Lab Infrastructure**
- Centrifugation of samples
  - Three fully Automated chemistry analysers
    - Cobas c 501
  - Two Immunoassay analysers
    - Cobas e 411
    - Cobas e 601
  - One Arterial blood gas analyser ABL 800 flex from Radiometer
  - Two Electrolyte analysers
    - Diestro
    - Prolyte
  - One HbA1C analyser D10 from Biorad
  - One electrophoresis system from Helena Biosystems-Protein and Hb electrophoresis

### **MICROBIOLOGY**

1. Conventional and Automated aerobic and anerobic culture and sensitivity – Vitek Compact 2
2. Automated Mycobacterial culture and sensitivity
3. Mycology culture & Identification
4. Automated Blood culture system
5. Conventional Media preparation facility – Autoclave , Hotair oven
6. Preparation of various stains used in Microbiology & staining techniques
7. Chemiluminescence Immunoassay for Serological tests
8. ELISA
9. Immunochromatographic tests
10. Latex agglutination tests in serology
11. Immunofluorescence microscopy
12. Immunoblot assay

Students are trained in performing, handling and maintenance of above equipments and procedures

### **PATHOLOGY**

1. Cytology staining techniques
2. Handling of cytospin
3. Cytology fixation techniques
4. Haematology – Handling & maintenance of Coulter counter feed techniques
5. Blood banking techniques – Sampling, Cross matching, Coombs testing
6. Immunohistochemistry – Techniques for IHC staining

## **Internship Training**

**Medical Laboratory Technology** students should have completed the compulsory rotatory posting in Biochemistry, Microbiology and Pathology departments respectively and should be able to perform the following:

- a) Sample collection and preparation
- b) Basic handling of all the fully automated analysers
- c) Basic and special stains and smears
- d) Media preparation and culture work
- e) General serology and ELISA
- f) Basic Cytology and Hematology procedures
- g) Histopathology : Grossing, cutting and staining procedures
- h) Blood bank: Donor counselling and screening, Component preparation
- i) Quality control procedures
- j) Orientation regarding HIS/LIS
- k) Maintenance of logbooks and registers