

## MEDICAL LABORATORY TECHNICIAN

### The Role of a Medical Laboratory Technician

Clinical laboratory testing plays a crucial role in the detection, diagnosis, and treatment of disease. Medical Laboratory Technicians are trained to work under the supervision of a Technologist to conduct routine diagnostic tests, as well as set up, clean and maintain medical laboratory equipment. As a Medical Laboratory Technician you will be responsible to collect blood, tissue and other samples from patients; log patient samples and prepare them for testing. You will perform laboratory procedures such as preparing specimens for testing, and preparing culture media and stock solutions and recognize problems and errors. Medical Laboratory Technicians use automated equipment and computerized instruments capable of performing a number of tests simultaneously, as well as microscopes, cell counters, and other sophisticated laboratory equipment.

### Program Objectives / Job Opportunities

Our Medical Laboratory Technician program emphasizes the importance of hands on training. Being proficient in blood collection, performing ECG's, and the use of various laboratory equipments are as vital as learning the theory behind the practice. All of our students learn about the value of patient communication and patient care, as interpersonal skills are a fundamental part of being a successful Medical Laboratory Technician.

Robotech students have the advantage of working within our fully equipped and automated diagnostic laboratory. With the training we offer in our modern and up-to-date facilities and led by our highly qualified Instructors, graduates will have the competitive edge when seeking a job. Upon successful completion of our program, students are eligible to sit for both the National and Provincial exams. Our program provides our students with review classes and a mock exam to assist in preparing for these exams. This short term program can lead you to long term success!

### Rewarding career opportunities can be found in a variety of areas including:

Hospitals	Addiction Centres
Insurance Companies	Private laboratories
Clinical Research Companies	Blood Donor Clinics
Home Health Care	Doctors Offices
Government Laboratories	Pharmaceutical Research

### Course Schedule:

<b>Full Time</b> <b>24 Weeks</b>	In-Class Schedule	9:30am-4:00pm	Monday – Thursday*
	Internship Schedule	9:00am-5:00pm	Monday – Friday**
<b>Part Time</b> <b>52 Weeks</b>	In-Class Schedule	9:30am-4:00pm	Saturdays
	Internship Schedule	Mornings/Evenings	Weekdays/Weekends**

*\*Students are required to attend school for three Fridays for Transportation of Dangerous Goods and CPR/First Aid Training. Scheduled dates will be confirmed with the student within the first week of classes. Dates are subject to change but students will be notified immediately as to the changes.*

*\*\*Hours may vary depending on the particular location of placement. For part time student's: We will try our best to provide a placement location to accommodate your hours of availability, although it is not guaranteed and full time hours are preferred. All students REQUIRE 240 hours of Clinical Internship to successfully complete the program.*

### Tuition Fees:

**\$9,515.00**      *Includes text books, laboratory fees, liability insurance and Student ID Card*

## **MEDICAL LABORATORY TECHNICIAN**

**MODULE CODE:        MLA 101**

### **Introduction to Medical Laboratory and the Administrative Role**

This module will introduce the student to the structure of the medical setting and the importance on the organizational flow in which a clinical laboratory has to run. Students will be introduced to the fundamentals of proper communication, both verbal and non-verbal, and learning the administrative role in areas such as patient documentation, filing and appointment scheduling. An early introduction into the body systems, collections containers, and blood collection tubes are also explored, and will be covered in more detail in the following modules.

#### **Module One will also cover:**

Roles and Responsibilities for ECG and Phlebotomy Technicians  
Requisition Forms;  
Scheduling Special Laboratory Testing;  
Laboratory Codes and OHIP Procedures;  
Reporting Test Results;  
Recording and entering results from outside reference laboratory;  
Quality Assurance and Quality Control;  
Patient Documentation; and  
Frequently used Abbreviations

**MODULE CODE:        MLA 102**

### **Blood Collection – Anatomy & Physiology of the Vascular System**

This module will first introduce the student to the anatomy and physiology of the Vascular System. Students will learn the proper techniques for the collection of blood, both Venipuncture and Capillary Puncture. This exciting module will allow the students to get the hands-on experience of blood collection. Students will learn in great detail the specifics of blood clotting mechanisms, types of blood specimens, site selection and the specific criteria to determine the proper method of collection.

#### **Module Two will also cover:**

The structure of muscles and blood vessels;  
Guidelines for site selection;  
Routine Capillary Puncture (Adult and Infant);  
Pediatric Collections;  
Butterfly and Syringe Methods;  
Centrifuge;  
Anticoagulants; and  
Smear Preparation

**MODULE CODE:        MLA 103**

### **Electrocardiography – Anatomy & Physiology of the Cardiovascular System**

This module will first introduce the student to the anatomy and physiology of the Cardiovascular System. Students will proceed to learn about lead positions and the proper technique in performing ECGs. The various ECG equipment and supplies will be covered, as well as exploring the different functions and use of the machines. Students will put their practical skills to use using the Burdick EK 10, Burdick 350, Telemed and Computerized ECG. Students will also learn the function and set-up of Holtor Monitors. CPR and First Aid Training will be taught, a certificate of completion will be awarded.

#### **Module Three will also cover:**

Standardization of ECG Machine;  
Cardiac Cycle (wave diagram), voltage/time;  
Artifacts-Identification and Solutions; and  
Blood Pressure Equipment and Measurement

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**MODULE CODE            MLA 104**

### **Safety Procedures and Protocols**

This module will introduce the student to the concept of safety in the laboratory environment for both patients and medical laboratory assistants. This module will cover general safety measures to ensure a safe and sterile environment. Students will also study the Transportation of Dangerous Goods in which a certification of completion will be awarded after this component. Safety issues in the medical workplace, including the handling, storage, and disposal of biological hazards and pathogens will be discussed and taught following the government regulations and guidelines. An early introduction of PFT and Urinalysis will also be discussed and will be covered in more detail in the following modules.

**Module Four will also cover:**

WHMIS and Hazardous Material Symbols;  
TDG Certification;  
Universal Precautions;  
Isolation;  
MSDS;  
Fire Safety, Evacuation Plans, (Fire Extinguisher demonstration);  
Accident/Incident Reporting

**MODULE CODE            MLA 105**

### **Laboratory Settings and Standards of Practice**

This module will first cover Anatomy and Physiology including the Body Systems and the four basic types of tissue's structural and functional characteristics. It will also review in more detail the profession of Medical Laboratory Assistant/Technician. Topics such as professional code of ethics, confidentiality, and standards of practice will be discussed. This module will also cover measurement units, the metric system, conversions and laboratory math as well as statistical calculations which play a significant role in clinical laboratory analysis. In addition, students will be introduced to the laboratory setting and the equipments used including, lab plastics and glassware, Balances, Automatic Media Processor, Tissue Processor, and various Centrifuges.

**Module Five will also cover:**

Maintenance of an efficient laboratory;  
Reagent Preparation;  
Solution Preparation; and  
Laboratory Safety

**MODULE CODE            MLA 106**

### **Hematology**

This module will first introduce to the student the anatomy and physiology of the Circulatory System and the routine tests in the hematology departments. The student will learn the principles, functions and care of the equipment found in the hematology and blood banking departments. Students will learn how to prepare and stain a blood film and examine it for proper staining.

**Module Six will also cover:**

Manual and automated blood counting;  
Differential Cell Count and RBC indices;  
Capillary Puncture – Blood Smear and Staining;  
Reticulocyte Count;  
Bleeding Time; and  
Laboratory Safety within the Hematology department

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**MODULE CODE: MLA 107**

### **Serology, Urinalysis, Clinical Chemistry**

This module will first introduce the student to the anatomy and physiology of the Urinary System, and will teach the student about the physical and chemical analysis of urine. The students will learn collection and instruction for routine and microscopic examination and will be taught the specimen requirements for all routine clinical chemistry tests. Students will understand the function and use of both automated and manual instrumentation, including Chemistry Analyzers with nine perimeters, data input, and specimen sorting. This module will also introduce the students to serological testing.

#### **Module Seven will also cover:**

Equipments used: Chemstrip 5L and Clinitek;

ABO Grouping;

Rh Typing;

Antibody Screening;

Pregnancy and Mono Testing; and

Laboratory Safety within the Serology, Urinalysis and Chemistry Departments

**MODULE CODE: MLA 108**

### **Microbiology – Laboratory Safety**

This module will first introduce the student to the major classes of microorganisms. This module will provide the students with an understanding of the techniques used to inoculate specimens using the appropriate media and incubation conditions. The students will learn about common media used in a microbiology laboratory.

#### **Module Eight will also cover:**

Stages of Infection - Diagnosis and Isolation ;

Inoculating: Agar Media, Agar Slant Tubes, Culture Broth Tubes, Automated Planting Machine;

Distinguishing between selective and non-selective media and enriched and differential media;

Incubation: Correct time and temperature, Anaerobic Conditioning, Increased Co2 Tension

Identification of Bacteria;

Virology: HIV, Hepatitis B;

Parasitology;

Specimen Collection for Microbiology & Safety Technique;

Methods of destruction of Micro organisms; and

Laboratory Safety within the Microbiology department

**MODULE CODE: MLA 109**

### **Anatomical Pathology - Histology and Cytology**

This module will introduce the students to histology and cytology; including specimen reception, accession and rejection as well as specimen processing, staining and microslide cover slipping. The importance of understanding cross contamination risks and the proper procedures required during specimen processing and staining are also covered in detail.

#### **Module Nine will also cover:**

Cell Block Preparation (Application in Cytology only);

Direct Smear Preparation;

Filtration – Nucleopore and Millipore;

Staining Sequence;

Romanowsky, Papanicolaou and routine H & E stains; and

Laboratory Safety within the Histology and Cytology department