

M.Sc. MLT

Program outcome	Course Name	Course Outcomes
<p>Upon successful completion of the degree in Medical Laboratory Technician, the student should be able to:</p> <ul style="list-style-type: none"> ❖ Perform routine clinical laboratory procedures within acceptable quality control parameters in Hematology, Biochemistry, Immunohematology, Cytopathology, Histopathology, Blood transfusion and Microbiology under the general supervision of a Clinical Laboratory Scientist or Pathologist. ❖ Demonstrate technical skills, social behavior, and professional awareness incumbent upon a laboratory technician. ❖ The student will be able to explain the basic nature of disease processes from the standpoint of causation, epidemiology, natural history, and the structural and functional abnormalities that result. ❖ Apply systematized problem solving techniques to identify and correct procedural 	<p>1. General pathology</p>	<p>Demonstrate an understanding of essential basic pathological processes including cell death and injury, inflammation, thrombosis and neoplasia.</p>
	<p>2. General Microbiology</p>	<p>At the end of the course students should know the prokaryotic cell structure, develop basic skill in aseptic techniques, sterilization technique. Perform various staining techniques, Cultivate bacteria with different cultivation technique.</p>
	<p>3. General Biochemistry</p>	<p>At the end of the course the student should know the structures and functions of biomolecules, their relations that form the basis of what we understand to be living organisms and know the experiment, research related to them.</p>
	<p>4. Anatomy & Physiology</p>	<p>At the end of the course student should know in depth Anatomy and physiology of the nervous, musculoskeletal, respiratory, and cardiovascular, excretory, endocrine and reproductive systems from a regional perspective.</p>
	<p>5. Computational skills & Biostatistics</p>	<p>At the end of the course student should demonstrate computational skills and understanding of the central concepts of modern statistical theory and their probabilistic foundation.</p>
	<p>6. Clinical Biochemistry</p>	<p>At the end of the course student should know the principle, biochemistry and pathophysiology associated with tests performed in a clinical biochemistry laboratory and analytical instruments.</p>

<p>errors, identify instrument malfunctions and seek proper supervisory assistance, and verify the accuracy of laboratory results obtained.</p> <ul style="list-style-type: none"> ❖ Operate and maintain laboratory equipment, utilizing appropriate quality control and safety procedures. ❖ Effect a transition of information and experiences learned in the MLT program to employment situations and performance on the written examinations conducted by the Swami Vivekanand Subharti University. ❖ Recognize and participate in activities which will provide current knowledge and upgrading of skills in laboratory medicine. 	<p>7. Immunology</p>	<p>At the end of the course student should know the concepts of immune system and they determine what immunomodulatory strategies can be used to enhance immune responses or to suppress unwanted immune responses such as might be required in hypersensitivity reactions, transplantations or autoimmune diseases.</p>
	<p>8. Medical Genetics</p>	<p>The student will be able to develop understanding of the patterns of inheritance and clinical manifestations of genetic diseases; chromosomes, chromosomal abnormalities, and the clinical features of common chromosomal disorders; population genetics; inborn errors of metabolism; and inherited cancer syndromes, genetic testing and screening, and plans for management and treatment.</p>
	<p>9. Molecular biology & Recombinant DNA Technology</p>	<p>At the end of the course students should explain genome organization in higher organisms, kinetic classes of DNA and Gene families, steps involved in recombinant DNA technology. Demonstrate practical skills used in molecular biotechnology such as PCR and molecular cloning and obtain and evaluate information on a current topic in molecular biology and communicate this analysis in writing.</p>
	<p>10. Diagnostic Biochemistry</p>	<p>Professionally apply biochemical tests to health problems and explain their clinical significance in the assessment of lipid, purine and carbohydrate metabolism, in the assessment of kidney, liver, heart function, acid/base balance and know the quality systems and concepts of measurement of uncertainty</p>
	<p>11. Management and Biomedical Techniques</p>	<p>At the end of the course students are able to perform a full range of testing in the contemporary medical laboratory encompassing pre-analytical, analytical, and post-analytical components of laboratory services, including, chemistry, microbiology, urine analysis, body fluids, molecular diagnostics, and immunology.</p>

	<p>12. Recent Advances in Biochemistry</p>	<p>At the end of the course the students know recent advances in and human related biochemistry and have an appreciation of the role that molecules play in a numbers of disease states and the therapies used to combat the disorders.</p>
	<p>13. Research Methodology</p>	<p>At the end of the course the students should know some basic concepts of research and its methodologies, identify appropriate research topic, research problem and parameters. Prepare a project proposal (to undertake a project).Organize and conduct research in an appropriate manner and write a research report and thesis and write a research proposal (grants).</p>
	<p>14. Medical Bacteriology</p>	<p>The students should able to identify common pathogenic bacterial agents and the diseases that they cause, their general and specific mechanisms by which bacteria causes disease their epidemiology of infectious agents including how infectious diseases are transmitted and explain interventions employed to prevent Bacterial diseases including infection control measure and vaccines.</p>
	<p>15. Medical Parasitology</p>	<p>The students should able to identify common pathogenic parasitic agents and the diseases that they cause, their general and specific mechanisms by which parasite causes disease their epidemiology of infectious agents including how infectious diseases are transmitted and explain interventions employed to prevent diseases including infection control measure and Vector control.</p>
	<p>16. Medical Virology & Mycology</p>	<p>The students should able to identify common pathogenic viral and fungal agents and the diseases that they cause, their general and specific mechanisms by which bacteria causes disease their epidemiology of infectious agents including how infectious diseases are transmitted and explain interventions employed to prevent Bacterial diseases including infection control measure, vaccines and vector control government guidelines.</p>

	<p>17. Clinical Microbiology</p>	<p>At the end of the course the students are able to perform diagnostic skills by using basic and advanced diagnostic exercises using microscopy etc, apply appropriate microbiology laboratory techniques, methodologies, instruments and equipment in accordance with current laboratory safety protocol. And calculate, record, and report clinical microbiology results/reports according to clinical laboratory protocol.</p>
	<p>18. Recent advances in Microbiology</p>	<p>At the end of the course the students should know a wide range of advanced experimental techniques, laboratory exercises which have significance in industrial, Hospitals and everyday Laboratory applications, scientific method and mathematical analysis have skills in maintaining data & report writing.</p>
	<p>19. Hematology</p>	<p>At the end of the course the students should be able to correlate hematological findings with those generated in other areas of the clinical laboratory, patient symptoms and clinical history, to make appropriate and effective on-the-job professional decisions. Perform basic hematological laboratory testing, assess laboratory data and report findings according to laboratory protocol.</p>
	<p>20. Clinical pathology and immunopathology</p>	<p>The student will be able to devise likely diagnoses from clinical scenarios by recognizing key manifestations of congenital, hemodynamic, inflammatory, infectious, metabolic, environmental, and neoplastic diseases and apply knowledge of pathology's role in the diagnosis, staging, and management of disease</p>
	<p>21. Blood Banking & Transfusion</p>	<p>The student should be able to apply advanced blood bank and blood transfusion knowledge to make appropriate and effective on-the-job professional decisions. Perform and interpret commonly utilized procedures in the blood bank laboratory. Recognize normal and abnormal test results and correlate these data with appropriate pathologic conditions to accurately advise health care providers.</p>

	22. Laboratory Management	The student should be able to collect and prepare human samples for analysis. Store or transport samples for analysis using appropriate preservation methods. Follow prescribed procedures, and with adequate orientation, perform routine testing in immunology, Immunohematology, hematology, hemostasis, blood bank and molecular diagnostics. Manage laboratory operations and human resources to ensure cost-effective, high-quality laboratory services.
	23. Recent advances in hematology & Blood Banking	At the end of the course the students should know a wide range of advanced experimental techniques, laboratory exercises which have significance in Hospitals laboratory and blood bank applications, scientific method and mathematical analysis have skills in maintaining data & report writing.