

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WB

Syllabus of M. Sc.in Medical Lab Technology

(Effective for 2022-2023 Admission Session)

Masters of Science in Medical Laboratory Technology (M. Sc. MLT):

The mission of the Master in Medical Laboratory Technology program at MAKAUT (formerly WBUT) is to prepare candidates with the knowledge, skills, and professional behaviours needed to function effectively in biochemistry laboratory settings. It is a postgraduate (PG) Programme of 2 years' duration (4 semesters)

Eligibility for Admission: All those candidates who have passed any recognized Bachelor's degree in Medical Lab Technology/interdisciplinary subjects in bio-sciences and chemistry of minimum three years' duration.

Program Outcomes or Post-Graduate Attributes of M.Sc Medical Lab Technology Program under MAKAUT:

Post-Graduate will be able to demonstrate the following program outcomes:

PO1- Medical Laboratory Knowledge: Apply the knowledge of molecular metabolism, clinical biochemistry, clinical enzymology, clinical endocrinology & toxicology, diagnostic molecular biology and other medical lab technology specialisations to the solution of complex disease diagnosis.

PO2- Design/Development of Solutions for diseases: Identify, review and research design solutions for complex medical diagnostic problems and design medical experimental components or processes to meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations.

PO3- Medical Laboratory Professional and Society: Create, select and apply techniques, resources and modern medical laboratory tools and techniques to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional Medical Laboratory Technology practice.

PO4- Individual and teamwork: Apply ethical principles and commit to professional ethics, responsibilities, and norms of the medical laboratory technologist practice as an individual, and as a member or leader in diverse teams and in advanced multidisciplinary settings.

PO5- Communication: Communicate effectively on complex medical laboratory technologist activities with the medical laboratory technologist community and with society, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO6- Lifelong Learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broad context of technological change.

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CURRICULUM STRUCTURE

First Semester

Course Code	Course Type	Course Title	Load Allocations			Credits
			L*	T*	P	
MMLT 101	Core Theory	Structure and Function of Biomolecules	3	0	-	3
MMLT 102	Core Theory	Analytical and physical Biochemistry	3	0	-	3
MMLT 103	Core Theory	Fundamentals of Enzymology	3	0	-	3
MMLT 104	Core Theory	Molecular Metabolism- I	3	0	-	3
MMLT 191	Core Practical/ Laboratory	Structure and Function of Biomolecules	-	-	6	3
MMLT 192	Core Practical/ Laboratory	Analytical and physical Biochemistry	-	-	6	3
MMLT 193	Core Practical/ Laboratory	Fundamentals of Enzymology	-	-	6	3
MMLT 181	Elective Practical	Seminar/Journal club	-	-	2	1
	TOTAL		12	00	20	22

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Second Semester

Course Code	Course Type	Course Title	Load Allocations			Credits
			L*	T*	P	
MMLT 201	Core Theory	Biochemical Techniques	3	0	-	3
MMLT 202	Core Theory	Clinical Biochemistry-I	3	0	-	3
MMLT 203	Core Theory	Molecular Metabolism-II	3	0	-	3
MMLT 204	Elective Theory	General Physiology & Organ Function Test	3	0	-	3
MMLT 291	Core Practical/ Laboratory	Biochemical Techniques	-	-	6	3
MMLT 292	Core Practical/ Laboratory	Clinical Biochemistry-I	-	-	6	3
MMLT 293	Elective practical	General Physiology & Organ Function Test	-	-	6	3
MMLT 281	Elective practical	Seminar/ Journal club	-	-	2	1
MMLT 205A/B/C/D/E/ F/G/H/I/J/K	MOOCS	MOOCS BASKET			2	2
	TOTAL		12	00	22	24

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Third Semester

Course Code	Course Type	Course Title	Load Allocations			Credits
			L*	T*	P	
MMLT301	Core Theory	Clinical Biochemistry-II	3	0	-	3
MMLT302	Core Theory	Applied molecular Biology	3	0	-	3
MMLT303	Elective Theory	Statistics and clinical biochemistry Laboratory management	3	0	-	3
MMLT304	Elective Theory	Automation in the clinical Biochemistry Laboratory	3	0	-	3
MMLT391	Core Practical/ Laboratory	Clinical Biochemistry- II	-	-	6	3
MMLT392	Elective Practical/ Laboratory	Automation in the Clinical Biochemistry Laboratory	-	-	6	3
MMLT393	Elective Practical/ Laboratory	Statistics and clinical biochemistry Laboratory management	-	-	6	3
MMLT381	Elective Practical	Seminar/journal club	-	-	2	1
MMLT 305 A/B/C/D/E/F/G/ H/I/J/K	MOOCS	MOOCS Basket			6	4
	TOTAL		12	00	26	26

Fourth Semester

Course Code	Course Type	Course Title	Load Allocations			Credits
			L*	T*	P	
MMLT 481	Sessional	Dissertation	Submission within 05 months			22
MMLT 482	Sessional	Journal Club				1
MMLT 483	Sessional	Industrial/Laboratory Training(in approved laboratories)	01 month			1
	TOTAL					24

*A course can either have four hrs Lecture or Three hrs Lecture + One hrs Tutorial as per requirement

Total Credit of M.Sc. Program: 96

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List of MOOCS Courses (Second & third semester for MMLT)

MMLT 205A/MMLT 305A-Development Research Methods (NPTEL)-Mandatory Course

MMLT 205B/MMLT 305B-Nanotechnology and Nanosensors Part I (Coursera)

MMLT 205C/MMLT 305C-Nanotechnology and Nanosensors Part 2 (Coursera)

MMLT 205D/MMLT 305D-Classical Papers in Molecular genetics (Coursera)

MMLT 205E/MMLT 305E-Design and conduct of Clinical Trials (Coursera)

MMLT 205F/MMLT 305F-Clinical Epidemiology (Coursera)

MMLT 205G/MMLT 305G-Biomedical nanotechnology (NPTEL)

MMLT 205H/MMLT 305H-Cell culture technologies (NPTEL)

MMLT 205I/MMLT 305I-Drug Delivery : Principle & Engineering (NPTEL)

MMLT 205J/MMLT 305J-Experimental Biotechnology (NPTEL)

MMLT 205K/MMLT 305K-Functional Genomics (NPTEL)