



# **AKAL UNIVERSITY**

**TALWANDI SABO**

(Estb. under Punjab State Act No. 25 of 2015)

**FACULTY OF PARA MEDICAL SCIENCES  
DEPARTMENT OF MEDICAL LAB TECHNOLOGY**

**Syllabi**

**For**

**BACHELOR OF MEDICAL LAB TECHNOLOGY  
For the students admitted from 2022-2025**

## Bachelors in Medical Laboratory Science

### Introduction

Objectives/aim of the course:

1. Proficiently perform a full range of clinical laboratory tests
2. Develop and evaluate test systems and interpretive algorithms
3. Manage information to enable effective, timely, accurate, and cost-effective reporting of laboratory-generated information

Expectation from the future graduate in providing patient care:

At the end of the course the student should be able to:

1. Perform routine clinical laboratory testing.
2. Make specimen-oriented decisions on predetermined criteria including working knowledge of critical values.
3. Communicate with other members of healthcare team, customers and patients in an effective manner.
4. Process information and ensure quality control as appropriate to routine laboratory procedures.
5. Train students in routine laboratory procedure.
6. Upgrade knowledge and skills in a changing healthcare scenario.
7. Should know the logical interpretation of clinical lab investigations.
8. Should be able to extrapolate data acquired
9. Should be able to working on automated machine

Eligibility for admission

Selection procedure

1. Candidate should have passed 10 + 2 with Biology or vocational course in MLS/MLT.
2. Minimum percentage of marks: 50% aggregate.
3. Separate entrance exam should be incorporated for these students who want to pursue allied health course.

Provision of Lateral Entry:

Students who have successfully completed DMLS and would like to pursue BMLS can directly enter into the second year or 3<sup>rd</sup> Semester, subject to availability of vacancy on merit of entrance test.

Duration of the course

Duration of the course: Total 4 Years(8 semesters or 4528 hours) with 3.5 Years didactic and practical (3808 hours) + 6 months (720 hours) internship after successful completion of all the 7 semesters of BMLS.

### Medium of instruction

English shall be the medium of instruction for all the subjects of study and for examination of the course.

### Provision of internship & project

Six months of internship should be mandatory in a Government recognized Hospital/Institution as partial fulfillment for the award of Bachelor in MLS Degree to candidates, as per government norms.

Minimum 720 hours of internship should be completed by the candidate to be awarded the degree.

### Attendance

A candidate has to secure minimum-

- 1) 75% attendance in theoretical
- 2) 80% in Skills training (practical) for qualifying to appear for the final examination.

No relaxation, whatsoever, will be permissible to this rule under any ground including indisposition etc.

### Assessment:

Assessments should be completed by the academic staff, based on the compilation of the student's theoretical & clinical performance throughout the training programme. To achieve this, all assessment forms and feedback should be included and evaluated. Students must attain a cumulative score of at least 50% marks in both theory and practical for each individual subject and internal assessment separately.

### Model Curriculum Outline

### First Semester Foundation Course

Subject Code	Course Titles	Hours per week			Marks			CR
		L	T	P	Internal	External	Total	
BMLS-101	Introduction to National Healthcare Delivery System in India	2	-	-	15	35	50	1
BMLS-102	Basic computers and information Science	2	-	-	15	35	50	2
BMLS-103	Communication and soft skills	2	-	-	15	35	50	2
BMLS-104	Medical Terminology, Record keeping (including anatomical terms) and Orientation to Medical Laboratory Science (MLS)	2	-	-	15	35	50	2
BMLS-105	Medical Law and Ethics	2	-	-	15	35	50	2
BMLS-106	Introduction to Quality and Patient safety (including Basic emergency care and life support skills, Infection prevention and control, Biomedical waste management, Disaster management and Antibiotic resistance)	3	1	-	15	35	50	2
BMLS-107	Professionalism and values	1	-	-	15	35	50	1
BMLS-108	Environmental Science	1	-	-	15	35	50	1
BMLS-109	Principals of Management with special reference to Medical Laboratory Science (MLS) management	2	1	-	15	35	50	2
BMLS-110	Community orientation and clinical visit	1	-	-	15	35	50	1
BMLS-111	Basic computers and information Science - Practical	-	-	4	15	35	50	2
BMLS-112	Communication and soft skills Practical	-	-	2	15	35	50	1
BMLS-113	Medical Terminology, Record keeping (including anatomical terms) and Orientation to Medical Laboratory Science (MLS) Practical	-	-	2	15	35	50	1

BMLS-114	Introduction to Quality and Patient safety (including Basic emergency care and life support skills, Infection prevention and control, Biomedical waste management, Disaster management and Antibiotic resistance) - Practical	-	-	4	15	35	50	2
BMLS-115	Environmental Science Practical	-	-	2	15	35	50	1
BMLS-116	Principals of Management with special reference to Medical Laboratory Science (MLS) management-Practical	-	-	2	15	35	50	1
Total		16	2	16	240	560	800	26
Total Hours in Semester		544						

NOTE:

1. Abbreviations: L - Lecture, T - Tutorials and P Practical
2. Considering four months per semester as working months, total contact hour hours per semester shall be 544 (Five hundred and forty four)
3. Teaching resources should be made available at every institute for all basic subjects

## Second Semester

Subject Code	Course Titles	Hours per week			Marks			CR
		L	T	P	Internal	External	Total	
BMLS-201	General Clinical Microbiology	4	-	-	30	70	100	4
BMLS-202	Basic Haematology	4	-	-	30	70	100	4
BMLS-203	Basic Clinical Biochemistry	4	-	-	30	70	100	4
BMLS-204	Human Anatomy and Physiology	4	-	-	30	70	100	4
BMLS-205	General Clinical Microbiology (Practical)	-	-	4	30	70	100	2
BMLS-206	Basic Haematology (Practical)	-	-	4	30	70	100	2
BMLS-207	Basic Clinical Biochemistry (Practical)	-	-	4	30	70	100	2
BMLS-208	Human Anatomy and Physiology (Practical)	-	-	4	30	70	100	2
	Guest Lecture/Tutorial/Seminar/visit to any medical research institution or reputed clinical laboratory	-	2	-	-	-	-	2
Total		16	2	16	240	560	800	26
Total Hours in Semester		544						

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### Third Semester

Subject Code	Course Titles	Hours per week			Marks			CR
		L	T	P	Internal	External	Total	
BMLS-301	Systematic Bacteriology	4	-	-	30	70	100	4
BMLS-302	Basics of Haematological diseases	4	-	-	30	70	100	4
BMLS-303	Biochemical metabolism	4	-	-	30	70	100	4
BMLS-304	Fundamentals of Histology	4	-	-	30	70	100	4
BMLS-305	Systematic Bacteriology (Practical)	-	-	4	30	70	100	2
BMLS-306	Basics of Hematological diseases (Practical)	-	-	4	30	70	100	2
BMLS-307	Biochemical metabolism (Practical)	-	-	4	30	70	100	2
BMLS-308	Fundamentals of Histology (Practical)	-	-	4	30	70	100	2
	Guest Lecture/Tutorial/Seminar/visit to any medical research institution or reputed clinical laboratory	-	2	-	-	-	-	2
Total		16	2	16	240	560	800	26
Total Hours in Semester		544						

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### Fourth Semester

Subject Code	Course Titles	Hours per week			Marks			CR
		L	T	P	Internal	External	Total	
BMLS-401	Applied Bacteriology	4	-	-	30	70	100	4
BMLS-402	Applied Haematology I	4	-	-	30	70	100	4
BMLS-403	Analytical Clinical Biochemistry	4	-	-	30	70	100	4
BMLS-404	Applied Histopathology I	4	-	-	30	70	100	4
BMLS-405	Applied Bacteriology (Practical)	-	-	4	30	70	100	2
BMLS-406	Applied Haematology - I - (Practical)	-	-	4	30	70	100	2
BMLS-407	Analytical Clinical Biochemistry (Practical)	-	-	4	30	70	100	2
BMLS-408	Applied Histopathology - I (Practical)	-	-	4	30	70	100	2
	Guest Lecture/Tutorial/Seminar/visit to any medical research institution or reputed clinical laboratory	-	2	-	-	-	-	2
Total		16	2	16	240	560	800	26
Total Hours in Semester		544						

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2. Considering four months per semester as working months, total contact hour hours per semester shall be 544 (Five hundred and forty four)



### Fifth Semester

Subject Code	Course Titles	Hours per week			Marks			CR
		L	T	P	Internal	External	Total	
BMLS-501	Immunology & Bacterial serology	4	-	-	30	70	100	4
BMLS-502	Applied Haematology II	4	-	-	30	70	100	4
BMLS-503	Applied Clinical Biochemistry I	4	-	-	30	70	100	4
BMLS-504	Applied Histopathology - II	4	-	-	30	70	100	4
BMLS-505	Immunology & Bacterial serology (Practical)	-	-	4	30	70	100	2
BMLS-506	Applied Haematology - II (Practical)	-	-	4	30	70	100	2
BMLS-507	Applied Clinical Biochemistry I- (Practical)	-	-	4	30	70	100	2
BMLS-508	Applied Histopathology-II (Practical)	-	-	4	30	70	100	2
	Guest Lecture/Tutorial/Seminar/visit to any medical research institution or reputed clinical laboratory	-	2	-	-	-	-	2
Total		16	2	16	240	560	800	26
Total Hours in Semester		544						

**NOTE:**

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2. Considering four months per semester as working months, total contact hour hours per semester shall be 544 (Five hundred and forty four)

### Sixth Semester

Subject Code	Course Titles	Hours per week			Marks			CR
		L	T	P	Internal	External	Total	
BMLS-601	Medical Parasitology & Entomology	4	-	-	30	70	100	4
BMLS-602	Advanced Haematology	4	-	-	30	70	100	4
BMLS-603	Applied Clinical Biochemistry II	4	-	-	30	70	100	4
BMLS-604	Cytopathology	4	-	-	30	70	100	4
BMLS-605	Medical Parasitology & Entomology - (Practical)	-	-	4	30	70	100	2
BMLS-606	Advanced Haematology - (Practical)	-	-	4	30	70	100	2
BMLS-607	Applied Clinical Biochemistry II-- (Practical)	-	-	4	30	70	100	2
BMLS-608	Cytopathology - (Practical)	-	-	4	30	70	100	2
	Guest Lecture/Tutorial/Seminar/visit to any medical research institution or reputed clinical laboratory	-	2	-	-	-	-	2
Total		16	2	16	240	560	800	26
Total Hours in Semester		544						

NOTE:

1. Abbreviations: L - Lecture, T - Tutorials and P Practical
2. Considering four months per semester as working months, total contact hour hours per semester shall be 544 (Five hundred and forty four)

## Seventh Semester

Subject Code	Course Titles	Hours per week			Marks			CR
		L	T	P	Internal	External	Total	
BMLS-701	Medical Mycology and Virology	4	-	-	30	70	100	4
BMLS-702	Blood Banking & Genetics	4	-	-	30	70	100	4
BMLS-703	Immunopathology & Molecular Biology	4	-	-	30	70	100	4
BMLS-704	Research methodology and Biostatistics	4	-	-	30	70	100	4
BMLS-705	Medical Mycology and Virology - (Practical)	-	-	4	30	70	100	2
BMLS-706	Blood Banking & Genetics- (Practical)	-	-	4	30	70	100	2
BMLS-707	Immunopathology & Molecular Biology - (Practical)	-	-	4	30	70	100	2
BMLS-708	Research methodology and Biostatistics - (Practical)	-	-	4	30	70	100	2
	Guest Lecture/Tutorial/Seminar/visit to any medical research institution or reputed clinical laboratory	-	2	-	-	-	-	2
Total		16	2	16	240	560	800	26
Total Hours in Semester		544						

NOTE:

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2. Considering four months per semester as working months, total contact hour hours per semester shall be 544 (Five hundred and forty four)

## Eighth Semester

Subject Code	Course Titles	Hours per week			Marks			CR
		L	T	P	Internal	External	Total	
BMLS-801	MLS Internship	-	-	720	50	150	200	26
	Total	-	-	720	50	150	200	26

NOTE:

1. Abbreviations: L - Lecture, T - Tutorials and P Practical

INTERNSHIP \_After completion of seven semesters of Bachelor MLS the candidates shall undergo six months internship in a Government recognized hospital/Institution as partial fulfillment for the award of Bachelor in MLSas per government norms.

