

# **PROGRAMME PROJECT REPORT**

**PROGRAMME NAME: BACHELOR OF SCIENCE IN MEDICAL LAB  
TECHNOLOGY (BSC MLT)**

## **Institution's Mission and Vision Statement**

*Mission:* To offer quality educational services and transforming lives through knowledge.

*Vision:* The vision of the Promoting Body is set-up a University with a difference. It envisages the Proposed University to come up as a centre of excellence for training of management Professional and shaping and molding of Business and Corporate Leaders of tomorrow.

## **Relevance of Programme to the Institution's Mission and Goals**

- Committing to continuous improvement through industry relations, and assurance of learning across all programmes.
- To fulfil the knowledge and development needs of the individuals, institutions and society in general, by relating, particularly, the courses, to the needs of the employment and economic development of the state on the basis of its natural and human resources.
- To provide an innovative system of University level education in regard to the methods and pace of learning, combination of courses, eligibility for enrolment, age of entry, conduct of examinations and operation of the programme, with a review to promote learning and encourage excellence in all fields of Knowledge.

## **Objective of the Programme**

- The objective of this program is to develop manpower for health sector by imparting knowledge about some of the cutting edge technologies of the field
- To ensure quality healthcare services and also to sharpen the competency skill of the Laboratory Assistant and other in-field personnel.
- Medical Laboratory Technology is an Allied Health specialty concerned with the diagnosis, treatment and prevention of diseases through the use of clinical laboratory tests.

## **Nature of Prospective Target Group of Learners**

- The minimum eligibility criterion required for BSC MLT is having 12<sup>th</sup> in Science. Candidates desirous to join service sector will opt for this programme because of the unique methodology of the programme, where students will get real-life workplace experience and learn simultaneously through eLearning support.
- The Duration of BSC MLT courses shall be of 3 Years. The Programme is on Semester/yearly system, thus there shall be three semester/yearly Examination. The University has continuous system on assessment & evaluation of measurement of learning outcomes by students. The Learning is assessed by blend of quizzes, assignment, Exercise analysis, report submission, Annual Examination.

## **Programme Appropriateness in Open and Distance Learning mode**

- Appropriateness of Programme to be conducted in Open and Distance Learning mode to acquire specific skills and competence
- The learners learn the theory concepts using eLearning.
- 'Learning through working' model makes them independent at the very beginning of their graduation.

## **Various Modes of Education Delivery**

- *Instructional Design*: Study focuses on the instructional design process on management, communication, technology and learning about organizations. Emphasis is given to the students' application and evaluation of their learning.
- *Self-Learning Material (SLM)*: SLM includes all the instructional design part like graphics oriented content, every unit contains Introduction, Activity, Notes, Summary, Keywords, Review Questions, Further reading & Explanatory figures.
- *e-Learning*: eLearning is a way to provide quick delivery of lessons. e-Learning helps in creating and communicating new training, policies, concepts, and ideas. eLearning enables educators to get a higher degree of coverage to communicate the message in a consistent way which ensures that all learners receive the same type of training with this learning mode.
- *Video Lectures*: It produces authentic learning opportunities for students. It inspires and engages students when incorporated into students centered learning activities through increased students' motivation, enhanced learning experience, and enhanced team working and communication skills.
- *Dynamic Web-Portal*: It provides a resource for locating and navigating to web based resources that support educational endeavours. It helps to keep up-to-date with new content and customize information depending on who is visiting the site.
- *Learning Management System (LMS)*: It create multimedia learning content which is comprehensive and practical, using video, images, audio and text which all serve as great tools in learning new skills or information.

- *Dictionaries of Specialized Subjects*: An insight into the terminology used subjects specific words and word origins. Dictionaries provide extra help with words and symbols to build subject understanding at home and in the classroom.
- *Instructional Simulations*: It is an educational simulation in which simulation of some type of reality (system or environment), which also includes instructional elements that help a learner explore, navigate or obtain more information.

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## **CURRICULUM, DETAILED SYLLABUS & OTHER DETAILS**

The Curriculum, Detailed Syllabus & other details are as under:

Name of Programme : BSC MLT (Bachelor of Science in Medical Lab Technology)  
Duration : 3 Years  
Examination : Semester/Yearly

### **B.Sc.(MLT) : Three-Year CBCS Program Program Code:309**

#### **Program Structure**

<b>Course No.</b>	<b>Course Title</b>	<b>Credits</b>	<b>Course Type</b>
	<b>First Year</b>		
BSC MLT 11	Anatomy	6	Core Course
BSCMLT12	Physiology	6	Core Course
BSCMLT13	Biochemistry-I	6	Core Course
BSCMLT14	Pathology-I	6	Core Course
BSCMLT15	General English	6	Core Course
BSCMLT16P	Anatomy Practical	6	LAB
BSCMLT17P	Physiology Practical	6	LAB
BSCMLT18P	Biochemistry Practical	2	LAB
	<b>Second Year</b>		
BSCMLT21	Pathology-II	6	Core Course
BSCMLT22	Microbiology-I	6	Core Course
BSCMLT23	Biochemistry-II	6	Core Course
BSCMLT24	Pharmacology	6	Core Course

BSCMLT25	Sociology	6	Core Course
BSCMLT26 P	Pathology-II Practical	6	LAB
BSCMLT27 P	Microbiology-I Practical	6	LAB
BSCMLT28 P	Biochemistry II Practical	6	LAB
	<b>Third Year</b>		
BSCMLT31	Pathology III	6	Core Course
BSCMLT32	Microbiology II	6	Core Course
BSCMLT33	Biochemistry III	6	Core Course
BSCMLT34P	Pathology Practical	6	LAB
BSCMLT35P	Microbiology Practical	6	LAB
BSCMLT36P	Biochemistry Practical	6	LAB

## Faculty Details

Sl.No.	Name	Designation
1	Mr. Viswendu Kera	HOD
2	Dr. Abhishek Das	Associate Professor
3	Dr. Sania Rizvi Yasha	Assistant Professor
4	Dr Khanam Mohsina Yasmin	Assistant Professor

## Student Support Staff

S.No.	Name	Designation
1	Ms. Pratyakshi Goswami	Incharge-Student Support Division
2	Ms. Anita Das	Sr. Student Counsellor
3	Mr. Nimpal Kalita	Incharge Grievance Cell
4	Mr. Geeti Gogoi	Asst. Incharge Students Activity Cell

## Student Support Service System

- The Student Support System aims to help students in a variety of ways, including career development, legal regulation, counseling, psychological support, and special concerns for international students.
- New students receive student handbook, which includes helpful information to acclimate them to the campus and University community.
- Students are surrounded by an extensive support system all the way from orientation through graduation.

## Procedure for Admission, Curriculum Transaction and Evaluation

- Counseling session at Campus
- Application form submission along with required documents check list – Online or at Campus
- Eligibility check from the Admission Section
- Documents verification
- Payment of Fees
- Issuance of Enrollment Number & ID Card
- Issuance of SLM & Academic Kit
- Scholarship test

## Details of Laboratory Support

- Medical Lab Support to aid students with their studies.
- The lab can help you with your homework, assignments, difficult course content and test preparation.
- Both experienced students from the programme and faculty members themselves volunteer at the lab, which makes it a key resource for any student.

## Library Resources

- We have library at campus which combine more than 10,000+ books for various courses and 400 national and international journals can be accessed by commonly used application.
- MGU partners with Excel Books Pvt. Ltd. a renowned publishing house for digital library access. It is a distinctive group of publishing companies, has a rich history in the book industry.

## Facilities Available to Learners

- *Scholarship*: Through this full tuition scholarships or other substantial awards being offered to the high qualifying students, either in the form of need-based or academic scholarships for university.
- *Book-lending*: An initiative to ensure the academic success of every student funded through alumni donations. This programme provides books for students who could not otherwise afford to purchase them.
- *CD/audio/video cassettes*: Enhance understanding with a teaching guide for using audio cassettes or CDs includes suggested teaching tips that engage learners with auditory and spatial intelligence learning styles.
- *Internet facility*: It opens doorways to a wealth of information, knowledge and educational resources, increasing opportunities for learning in and beyond the classroom.
- *Digital Library*: Provides access to digital repository or digital collection of e-books and e-notes.

## Cost Estimate of the Programme and its Provisions

The Cost estimate for BSC MLT Course on No Profit No Loss comes to Rs. 9,000/- yearly. The University has made provision of Rs. 10 Lakh for running of different course of Medical Laboratory and Technology Dept. (BSC MLT and MSC MLT) including the Printing of Teaching Material for the students.

## Quality Assurance Mechanisms

### 1. Learning Material (Print Media)

- The Self Learning Material is designed with the approach of two-way communication between the learner and content.

- It also involves the learner actively through various experience-based activities and assignments.
- The learner gets clear information about the structure of the programme and course.

## **2. Audio–Video Material**

- There is adequate consideration of learners’ prior knowledge, skills and attitudes.
- Level and style of language shall be appropriate.

## **3. Online Material**

- There is description of credit value of each module or unit in the course.
- There are clear guidelines on academic integrity and netiquette (internet etiquette) expectations regarding lesson activities, discussions and plagiarism.

## **4. Computer-based material**

- There is lesson’s overview, content and activities, assignments to provide the learning opportunities for learner to master the content.

## **5. Curriculum and Pedagogy**

- The structure of curriculum is defined.
- The content is reliable and justifies the learning outcome(s).
- There is clear definition of intended outcomes of learning, benchmarked to identifiable stages of learning.

## **Programme Outcomes**

- Work as laboratory technologist at hospitals, Pharmaceutical laboratories, Public Health laboratories, research & product development
- Supervisor in laboratory, as consultant to laboratory medicine industry, Quality assurance companies, sales & marketing
- As a tutor in laboratory medicine graduate program.

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**DETAIL SYLLABUS OF THREE YEAR BACHELOR OF SCIENCE IN MLT COURSE**

**YEAR-WISE COURSE STRUCTURE**

**Bachelor of Science in MLT (BSc. MLT) - Syllabus**

**Year: First Year**

<b>COURSE CODE: BSCMLT11</b>		
<b>COURSE TITLE: Anatomy</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>
I	Introduction, Histology, Musculoskeletal Anatomy, Cardiovascular System, Respiratory System, Regional Anatomy, Embryology, Nervous System, Urinary System, Reproductive System, Special Sensory organs and sensations, Digestive systems.	78
<b>SUGGESTED BOOKS</b>		
1	Grays Anatomy	
2.	Textbook of Anatomy by Inderbir Singh	
3.	Human Anatomy by BD Chaurasia. Learning India Private Limited.	

<b>COURSE CODE: BSCMLT12</b>		
<b>COURSE TITLE: Physiology</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>
I	Cell and Tissue, Blood, Muscle, Digestive System, Renal System, Sensory System, Cardiovascular system, Respiratory system, Nervous system, Reproductive System, Endocrinology	78
<b>SUGGESTED BOOKS</b>		
1	Textbook of Medical Physiology by GK Paul	

<b>COURSE CODE: BSCMLT13</b>		
<b>COURSE TITLE: Biochemistry-I</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>
I	Carbohydrates, Lipids, Amino acids and proteins, Nucleic acids, Enzymes, Vitamins, Nutrition, pH and buffers	78
	<b>SUGGESTED BOOKS</b>	
1	Biochemistry by U. Satyanarayan	

<b>COURSE CODE: BSCMLT14</b>		
<b>COURSE TITLE: Pathology-I</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>
I	Immunoematology and blood banking, Clinical pathology and hematology	78
	<b>SUGGESTED BOOKS</b>	
1	Textbook of Hematology by Ramdas Nayak	

<b>COURSE CODE: BSCMLT15</b>		
<b>COURSE TITLE: General English</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>
I	Comprehension and vocabulary, composition, translation, grammer and usage	78
	<b>SUGGESTED BOOKS</b>	
1	Textbook of Hematology by Ramdas Nayak	

<b>COURSE CODE: BSCMLT16P</b>		
<b>COURSE TITLE: Anatomy Practical</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>

<b>COURSE CODE: BSCMLT17P</b>		
<b>COURSE TITLE: Physiology Practical</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>

<b>COURSE CODE: BSCMLT18P</b>		
<b>COURSE TITLE: Biochemistry Practical</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>

**Year: Second Year**

<b>COURSE CODE: BSCMLT21</b>		
<b>COURSE TITLE: Pathology-II</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>
I	Histotechnology, Cytology, Museum study, Autopsy techniques	78
	<b>SUGGESTED BOOKS</b>	

<b>COURSE CODE: BSCMLT22</b>		
<b>COURSE TITLE: Microbiology-I</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>
I	Bacteriology, virology, mycology, Parasitology, Immunology and Serology, animal care	78
	<b>SUGGESTED BOOKS</b>	

<b>COURSE CODE: BSCMLT23</b>		
<b>COURSE TITLE: Biochemistry-II</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>
I	Nutrition, carbohydrates, lipids, amino acids, proteins, enzymes, vitamins, Diabetes mellitus	78
	<b>SUGGESTED BOOKS</b>	

<b>COURSE CODE: BSCMLT24</b>		
<b>COURSE TITLE: Pharmacology</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>
I	Introduction and History, Definition and Classification, Routes of administration, Factors modifying drug effects, Adverse effects, Pharmacokinetics and Pharmacodynamics, Drugs affecting on different organ systems of the body, Chemotherapy, Vaccines	78
	<b>SUGGESTED BOOKS</b>	

<b>COURSE CODE: BSCMLT25</b>		
<b>COURSE TITLE: Sociology</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>
I	Introduction, Sociology and health, Socialization, social groups, social change, Social control, Social problems, social security	78
	<b>SUGGESTED BOOKS</b>	

<b>COURSE CODE: BSCMLT26 P</b>		
<b>COURSE TITLE: Pathology-II Practical</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>

<b>COURSE CODE: BSCMLT27 P</b>		
<b>COURSE TITLE: Microbiology-I Practical</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>

<b>COURSE CODE: BSCMLT28 P</b>		
<b>COURSE TITLE: Biochemistry II Practical</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>

**Year: Third Year**

<b>COURSE CODE: BSCMLT31</b>		
<b>COURSE TITLE: Pathology III</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>
I	Histopathology: Introduction, Fixation, Tissue processing, Microtomy, Frozen section, Routine Staining, Special stains	25
II	Cytopathology: Introduction, Collection of specimen from female genital tract, Urinary cytology, Body cavity fluids, FNAC, staining.	25
III	Immunohistochemistry: Antigen, Antibody, Antibody antigen binding, affinity, avidity, antibody specificity, sensitivity, Monoclonal and polyclonal antibodies, Immunohistochemical methods.	28

<b>COURSE CODE: BSCMLT32</b>		
<b>COURSE TITLE: Microbiology II</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>
I	Bacteriology: Morphology, Colony characteristics, pathogenesis, and laboratory diagnosis	12
II	Gram positive bacteria Staphylococcus epidermis, Streptococcus pneumonia, Mycobacterium tuberculosis, Corynebacterium diptheriae	12
III	Gram negative bacteria Proteus spp. Klebsiella pneumonia Vibrio cholera Mycoplasma	12
IV	<b>Virology</b> General properties, basic structure, pathogenesis, lab diagnosis and prophylaxis of – pox virus, hepatitis virus, Influenza virus, Polio virus.	12
V	<b>Mycolog</b> General properties, pathogenesis, laboratory diagnosis, treatment of – Superficial mycosis, subcutaneous mycosis, systemic mycosis, opportunistic mycosis	12
VI	<b>Parasitology</b> General characteristics, morphology, pathogenesis, life cycle, lab diagnosis of- <i>Plasmodium</i> , <i>Entamoeba histolytica</i> , <i>Giardia lamblia</i> , <i>Ascaris lumbricoides</i> , <i>Taenia saginata</i> , <i>Taenia solium</i> , <i>Fasciola hepatica</i>	18
<b>COURSE CODE: BSCMLT33</b>		
<b>COURSE TITLE: Biochemistry III</b>		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>

I	Clinical Biochemistry: Hormones, Clinical Enzymology, organ function test, thyroid function and pancreatic function test	40
II	Analytical Biochemistry: Chromatography, Electrophoresis, Photometry, Flurometry, Determination of pH, Biochemical Tools- Centrifuge, Ultracentrifuge , Flame Photometry, Auto analyzer, RIA, ELISA	38

<b>COURSE CODE:</b> BSCMLT34P		
<b>COURSE TITLE:</b> Pathology Practical		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>

<b>COURSE CODE:</b> BSCMLT35P		
<b>COURSE TITLE:</b> Microbiology Practical		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>

<b>COURSE CODE:</b> BSCMLT36P		
<b>COURSE TITLE:</b> Biochemistry Practical		
<b>UNITS</b>	<b>CONTENTS</b>	<b>Hours: 78</b>