# ERA UNIVERSITY FACULTY OF ALLIED HEALTH SCIENCES DEPARTMENT OF MEDICAL LABORATORY TECHNIQUES.

Name of HoD:	Dr Ekta A. Andriyas Ph.D. 9 years of experience ekta.andriyas@erauniversity.outlook.com ekta2529@gmail.com		
Faculty	04 Assistant Professors		
	02 Lecturers		
	02 Tutors		
<b>Research Publications</b>	12		
Conference/workshop/	1) One day CME on good lab Practices on 10 <sup>th</sup> December 2021.		
Lecture Organized	2) Guest lecture on precaution in sample collection and cold chain transportation and 24 January 2023.		
	3) Model and poster making competition on World Health day 7 <sup>th</sup> April 2023.		
	4) "Awareness program on water and food born disease and their transmission-do's and don'ts" on 3 <sup>rd</sup> of June 2023.		
	5) Blood donation camp and poster making competition on World blood donor day 14th June 2023.		

# **Department of Medical Laboratory Techniques**

The backbone of a proper and good management in diagnostic- test performed in the laboratory and pathologies Medical Laboratory Technology (MLT) which is a field of study of science that uses clinical laboratory tests to analyze, prevent, diagnose and treat the diseases. This entails analyzing bodily fluids such as tissues and blood.

Medical Laboratory Technologists (MLT) are vital healthcare professionals, providing laboratory information from laboratory analyses that assist physicians and other healthcare professionals in patient diagnosis and treatment, as well as in disease monitoring and prognosis.

Diploma in MLT started in Era institute of Allied Health sciences and Research, Era University in the year 2006, whereas the bachelors started from 2017 after establishment of University.

There are many programs organized by the department like guest lecture, conference and seminars .University also focuses on the extracurricular activities such as cultural events, sports between the teams of different faculties, rangoli competion, Paining competition, mehendi compition etc .

Many alumni of Era University are working in many govt and private hospitals such as RML, CHC, private labs and hospitals. The placement cell of the university also organize programs like placement drive for the alumni students and experience sharing program for current students so that they also may be focused on theirs studies that may help them to achieve the mile stones. We emphasize on the skills of each student we provide the students a better Envoirment for learning

The Faculty of Allied Health Sciences at Era University offers 2 years of diploma in medical laboratory techniques and four year (including Internship) of Bachelor of Science in Medical Laboratory Technology (BMLT) and Diploma in medical laboratory Techniques are affiliated to Uttar Pradesh state medical faculty. Medical Laboratory Technology is an Allied Health profession that focuses on the use of clinical laboratory testing to diagnose, treat, and prevent illnesses.

It is one of the most sought-after paramedical science programs, promising a successful career to those who pursue it. MLT specialists are active constituents of the health-care teams and hospitals. Students learn how to conduct tests, collect data, create reports, and record their results to operate and maintain complex lab equipment's.

As the number of laboratory tests being conducted continues to grow due to expansion in health sector and the introduction of new types of tests, employment of clinical laboratory professionals is on the rise.

#### **LEARNING OBJECTIVES**

At the end of three year teaching and training & 6 months of internship, the students should be able to:

- Perform all the laboratory exercises of Phlebotomy, Clinical Pathology, Hematology, Histopathology, Cytopathology, Biochemistry and Microbiology, independently
- Handle and operate all the semi-automatic and fully automatic instruments &other equipment used in the laboratory
- Perform exercises of quality control
- Maintain the records of the laboratory by proper documentation
- Supervise and manage the junior technical &non-technical staff of the laboratory

#### PROGRAM OUTCOMES

Upon the successful completion of the program BSc. MLT graduates are able to:

- Use their knowledge and technical skills of medical laboratory techniques for providing quality clinical investigations support
- Conduct routine clinical laboratory procedures within permissible quality control parameters in phlebotomy, hematology, biochemistry, immunohematology and microbiology
- Demonstrate technical skills, social behavior and professional awareness for functioning effectively as a Laboratory Technologist
- Apply problem solving techniques in identifying and correction of pre analytical, post analytical & analytical variables
- Use proper quality management and safety protocols to operate and maintain laboratory equipment
- Recognize the global and environmental implications of laboratory experiments.
- To effectively communicate through oral, graphical and written means
- Work as a front line leader / team member in diversified professional and industrial research areas

#### **ELIGIBILITY FOR ADMISSION**

• 10 + 2 or equivalent examination recognized by any board with minimum 55% marks in Physics, Chemistry and Biology (PCB).

#### COURSE DURATION

- From batch 2023 :4 years (3.5 yrs.+ 6months of internship)
- Till batch 2022:3.5 years (3yrs + six semesters)=+6 months of internship

#### • CAREER PROSPECTS

Medical laboratory specialists have a vast array of practice settings to choose from. Currently, skilled laboratory experts are in demand in hospitals, clinics, nursing homes, public health facilities, pharmaceutical industries, research laboratories and diagnostic centers.
 Aspiring students can continue their study and go on to work as scientists or academic professors.
 Medical Laboratory Technologists with a keen sense of judgment may be able to work as industrial consultants or quality assurance officers or start their own business after gaining experience in the industry.

# • CURRICULUM AT A GLANCE from batch 2023 (4 yrs)

# 1<sup>st</sup> semester (Foundation course)

- Basic computer & information science
- English Communication and soft skills
- Introduction to Quality &
- Patient Safety
- Basic Preventive Medicine and Community Health Care
- Environment Science

#### II<sup>nd</sup> sem

- Basic Clinical Biochemistry
- Basic Haematology & Clinical Pathology
- General Clinical Microbiology
- Human Anatomy and Physiology

#### IIIrd sem

- Biochemical metabolism
- Basics of Hematological diseases
- Systematic Bacteriology
- Fundamentals of Histology

#### IVth sem

- Analytical Clinical Biochemistry
- Applied Histopathology-1
- Applied Bacteriology
- Applied Haematology- I

# Vth sem

- Applied Clinical Biochemistry I
- Applied Histopathology II
- Immunology & Bacterial serology
- Applied Haematology- II

# VI th sem

- Medical Parasitology & Entomology
- Advanced Haematology
- Applied Clinical Biochemistry- II
- Cytopathology

#### VII th sem

- Immunopathology & Molecular Biology
- Blood Banking & Genetics
- Medical Virology & Mycology
- Research methodology and Biostatistics
- Principles of Laboratory Mangement

# VIII th sem

# **Six months Internship**

#### CURRICULUM AT A GLANCE till batch 2022,(3.5 Yrs)

#### **HUMAN ANATOMY**

- Introduction to Anatomy
- Anatomical Terminologies
- Body cavities & membranes
- General anatomy of bones, joints muscles, skin & cardiovascular system

#### PATHOLOGY HEMATOLOGY & CLINICAL PATHOLOGY

- Introduction to Clinical Pathology
- Laboratory & Instruments
- Universal work precaution for lab personnel & waste disposal
- Commonly used methods for sterilization & collection of blood sample
- Knowledge of WHO guidelines

#### **BLOOD BANKING**

- Immunohematology & Blood Groups
- Blood group systems
- Blood Donor
- Collection, Storage, Preservation & transportation of Blood and its components
- Detection and Identification of antibodies
- Cross matching (compatibility testing, Antihuman globulin (coomb's) test

#### **HUMAN PHYSIOLOGY**

- Blood & Cardio vascular system
- Respiratory & Digestive system
- Muscle Nerve Physiology

# GENERAL MICROBIOLOGY AND INSTRUMENTS

- History & Scope of Microbiology
- Working & Uses of Compound Microscope
- Morphology

## SEROLOGY & IMMUNOLOGY

- Immunodiagnostics & Precipitation techniques
- Agglutination, Complement Fixation & Neutralization test & Fluorescence techniques, Skin tests
- Antigen Antibody reactions
- Molecular diagnostic techniques

# **ENVIRONMENTAL & BIO MEDICAL WASTE MANAGEMENT**

- Introduction to Environment, pollution and its types and effect on humans
- Types of Bio Medical Wastes
- Collection, Treatment and Safe Disposal of Bio Medical Waste

#### LABORATORY MANAGEMENT

- Introduction to Laboratory
- Universal work precautions for lab personnel
- Waste Disposal, Benefits and costs of management system
- General Requirements: Impartiality, Confidentiality, Structural requirements: (including defining staff roles, reporting Structures and internal communication).
- Resource requirements, Process requirements

#### **BACTERIOLOGY**

- Introduction to prokaryotic cell, bacterial morphology, cell wall
- Different type of staining methods etc.
- E. coli, Shigella Spp. Salmonella Spp. etc.

#### **VIROLOGY**

- General Morphology, properties and ultra-structure of Viruses
- Cultivation of viruses, Bacteriophages, Morphology, Pathogenesis and Laboratory Diagnosis of RNA &DNA viruses, Herpes virus, Hepatitis B Virus, Pox Virus

#### **IMMUNOLOGY**

- Immune response
- Organs of Immune System
- Factors effecting immunogenicity
- Role of Complement System
- Hypersensitivity & Major Histocompatibility Complex

#### **BIOCHEMISTRY**

- Introduction to Biomedical Lab
- Description of Glassware's equipment's
- Units of measurement
- Preparation of reagents & solutions

#### BIOCHEMISTRY(SPECIMEN COLLECTION & ANALYSIS)

- Specimen Collection & Maintenance
- Urine & Body Fluid Analysis
- Basic instruments of Biochemistry
- Specimen collection, identification, transport, patient preparation for test

# **QUALITY MANAGEMENT AND INSTRUMENTATION**

- Quality Management & Audit in Lab
- Chromatography & Electrophoretic Techniques
- Immunoassay & Lab Automation

## **BIO-ENGINEERING**

- Methods of Data Collection
- Organization of Data
- Measures of Central Tendency, Correlation and Regression
- Sampling, Probability and Probability Distribution

# In Diploma in Medical Laboratory Techniques (DMLT) the subjects taught are as follows

Pathology

Microbiology

Parasitology

Pharmacology

Anatomy

Physiology

Biochemistry

The curriculum of Uttar Pradesh state medical faculty, Lucknow is followed for DMLT

# **Equipment's available in the Department:**

S.NO	Name of equipment	Quantity	Photograph
1	Autoclave	01	
2	Analytical Balance	01	TO PRINT UNT ICS

	BOD Incubator		Land State Control of the Control of
3	BOD Incubator		The second state of the se
	Refrigerator (160 Liters)	01	
	Laminar Air flow	01	STATE OF THE PARTY
6	Microscope Monocular	20	

7	(monocular)	04	
	Hot Plate	02	CABORATORY HOT PLATE
9	Hot Air Oven	02	DIGITAL HOT ALK OVEN

	Rotatory Microtome	01	
10			
11	Centrifuge (Remi)	02	REMI R-BC
12	Water bath	02	BOROSI STATE OF THE PROPERTY O
13	Colorimeter	01	SMSTERIC SIGNAL PHOTO COLORIMETER TURE

14	Magnetic stirer	02	MAGNETIC STITREE WITH HOT PLATE  TOTAL  AND 197  PRINTED TO STITREE WITH HOT PLATE  TOTAL  TO
15	Semi auto analyser	01	Crba CHEM STATE
16	ELISA Reader	01	PAST
17	ELISA Washer	01	
	Investigation to be performed by the students	Demonstration of Routine     Hemoglobin     Total Leucocyte cou	

performed by the	Hemoglobin
students	Total Leucocyte count
	<ul> <li>Preparation of blood smear</li> </ul>
	<ul> <li>Leishman staining</li> </ul>
	<ul> <li>Differential leucocyte count</li> </ul>
	<ul> <li>Identification of Malaria Parasite</li> </ul>
	Bleeding time

- Clotting time
- Erythrocyte sedimentation rate
- Hematocrit

#### **Demonstration of Routine biochemical test**

- Preparation of different type of solution(percent, molar, normal, Buffer )
- Analysis of normal and abnormal urine
- Liver function Test by semi auto analyser
- Renal Function test by semi auto analyser
- Estimation of Glucose
- Estimation of Urea
- Estimation of Serum Creatinine
- Estimation of Cholesterol
- Demonstration of chromatography
- Demonstration of PCR
- Demonstration of ELISA
- Demonstration of Thyroid function test

# Demonstration of Routine clinical pathology test.

- Routine urine examination
- Semen analysis
- CSF examination
- Examination of body fluids
- Histopathology

# **Demonstration of Histopathology and Clinical Pathology**

- H&E stain
- Pap Stain
- PAS stain
- Fixation
- Decalcification
- Microtomy
- Tissue processing
- Horning

# Academic and Students oriented Programs of the Department of MLT:

# Report on guest lectures;

On January 24, 2023, the Department of Medical Laboratory Techniques at Era University, Lucknow, organized a guest lecture on the topic of "Precautions in Specimen Collection and Cold Chain." The program was a great success, with a large number of attendees who received it with great enthusiasm.

The chief speaker at the event was Dr. Kalpana Singh Assistant professor, Department of Biochemistry k.G.M.U, Lucknow. The program began with a welcome speech by Nihal and Saba, two internship students, who greeted the attendees and introduced the guest speaker



The chief guest, Dr. Kalpana for the occasion was then invited to the stage and felicitated with a bouquet by the respected Dr. Riaz Mehndi, Professor of Pathology and Dean of Allied Health and Sciences. The audience applauded as the chief guest was recognized for their contributions to the field of healthcare.

Dr. Kalpana then began her lecture by discussing the importance of following proper protocols and procedures during specimen collection and maintaining the cold chain during transportation and storage. She emphasized the need for healthcare professionals to adhere to best practices and guidelines to ensure accurate and reliable test results. She also discussed the importance of maintaining the cold chain during the transportation and storage of specimens. She explained that temperature-sensitive specimens, such as blood and urine samples, need to be transported and stored at specific temperatures to prevent degradation or alteration of the samples. During the lecture, Dr. Kalpana highlighted the risks associated with improper specimen collection and handling, such as false-positive or false-negative test results, contamination, and loss of specimen integrity. She stressed the need for healthcare professionals to follow best practices and guidelines when collecting and handling specimens.

The lecture was well-attended by students of bachelors and diploma of MLT and faculty of the Department of Medical Laboratory Techniques, who were able to ask questions and engage in discussion with Dr. Kalpana.

At the end of the lecture, Mr. Imran, Assistant professor, MLT department on behalf of the

department, presented Dr. Kalpana with a certificate of appreciation for her valuable contribution to the field of medical laboratory techniques. In addition Mr. Tanveer, lecturer in the Department of Medical Laboratory Techniques, also presented a momento as a remembrance of her guest lecture on precautions in specimen collection and cold chain.



Following the presentation of the certificate of appreciation and momento to Dr. Kalpana, Dr. Ekta, Assistant Professor and Head of the Department of Medical Laboratory Techniques, delivered a vote of thanks to all those who attended and participated in the guest lecture.

Dr. Ekta expressed her appreciation to Dr. Kalpana for taking the time to share her valuable knowledge and expertise with the department, and for delivering an engaging and informative lecture. During the lecture, Dr. Ekta expressed her gratitude to Honorable Vice Chancellor Dr. Farzana Mehndi, who is the Professor and Head of Personalized Medicine at Era University, Lucknow, for granting permission to organize a guest lecture that was beneficial for the students. She conveyed her appreciation for the opportunity to offer this valuable educational event to the students.

Dr. Ekta also express her gratitude to prof Dr. Riaz Menhdi for his valuable time and efforts in promoting educational events that help students grow and excel in their academic pursuits.

She also thanked the faculty members, clerks, and attendants for their hard work and dedication in organizing the event and ensuring its success. Dr. Ekta acknowledged the efforts of everyone involved in setting up the venue, providing technical support, and coordinating the logistics of the lecture.

Dr. Ekta also conveyed her appreciation to Nihal and Saba for their hard work in anchoring the event. Their efforts were instrumental in making the program a success, and their contribution was greatly valued.

In addition, she expressed gratitude to the students who attended the lecture and actively participated in the discussion with Dr. Kalpana. Dr. Ekta emphasized the importance of continuing to learn and develop new skills in the field of medical laboratory techniques, and encouraged everyone to take advantage of the opportunities for education and professional development offered by the department.



Overall, Dr. Ekta's vote of thanks served as a reminder of the collaborative and supportive nature of the department, and highlighted the importance of teamwork and dedication in achieving success in the field of medical laboratory techniques.

Following the conclusion of the guest lecture and the vote of thanks by Dr. Ekta, a Hi-tea was offered to Dr. Kalpana and faculty members as a way to conclude the event on a high note and provide an opportunity for further networking and discussion. Dr. Kalpana, who had traveled to deliver the lecture, was particularly appreciative of the hospitality and warmth shown by the department of MLT and staff, and expressed her gratitude for the opportunity to share her knowledge and expertise with them.

Overall, the guest lecture was a successful and informative event that highlighted the importance of proper specimen collection and maintenance of the cold chain in medical laboratory techniques, and recognized the contributions of a valued expert in the field.

Thank you .

# REPORT An Awareness program;

An Awareness program on water and food born disease and their transmission-do's and don'ts was organised by the students of B.Sc MLT 6<sup>th</sup> sem, Department of Medical laboratory techniques, Era University on 3<sup>rd</sup> of June 2023 at Hayat Nagar Saitha village, Lucknow.

In this program the student of participated enthusiastically. They performed a skit to make the people aware on modes of transmission, sign and symptoms of water and food born disease. They also emphasized on the role of primary care and prophylaxis of the disease. They highlighted the importance of small effort which can helps us to be healthy like healthy hand washing practice, maintaining hygiene, avoid water storage, importance of clean water, prevention food borne diseases, proper sanitization and use of ORS which can save the children from severe diseases like cholera, typhoid etc.



The program was completed under the kind supervision of Prof (Dr) Abbas Ali Mahdi, Hon'ble Vice chancellor, Prof (Dr) Farzana Mahdi, Hon'ble Pro vice chancellor Era University and Prof (Dr) S. Riaz Mehdi, Dean Faculty of Allied Health Sciences, Era University.

In this program Ms Saher Khan Assist Prof and Mr Tanveer Raza Jafri Lecture accompanied and guided the students in Saitha village.



This program was a successful event and was a team effort of Dr Ekta A. Andriyas Head, Mr

Imran Hussain, Assist. Prof, Mrs Saher Khan, Assist. Prof, Mrs Neha Pant, Assist. Prof, Mr Tanveer Raza Jafri, Lecturer, Mrs Neetu Khuswaha, Lecturer, Mr Abhishek Mishra, Tutor, Ms Ilma Khan, Tutor, Department of MLT, Era University.

During this program the councillor of Saitha village Mrs Roshini Rawat, Mr Pushpendra Lodhi, Mr Ved Rawat, Mr Ashish Rajput, was also present and they all also supported us to organise this program and in all the way best way he could. This program was beneficial for the society and creates awareness on food and water born disease.

# Report on World Blood donor day;

On the occasion of world blood donor day 14<sup>th</sup> June 2023 a poster making competition was organized in Era in which the students of DMLT 1<sup>st</sup> year Batch 2020 and II<sup>nd</sup> year DMLT batch 2021 participated and presented their models as well as posters. In this program many students also donated blood in the Blood Bank of Era's Lucknow Medical College and Hospital, Lucknow.





This competion was conducted under the kind supervision of Prof (Dr) Abbas Ali Mahdi, Hon'ble Vice chancellor, Prof (Dr) Farzana Mahdi, Hon'ble Pro vice chancellor Era University and Prof (Dr) S. Riaz Mehdi, Dean Faculty of Allied Health Sciences, Era University. This Program was organised by Department of Medical laboratory Techniques, Faculty of Allied Health sciences, Era University. Blood Bank and Department of Pathology Era Medical College actively supported the event.

All the poster as well as model were judged by Prof Dr Saleem Tahir, Professor, Department of Surgery, Dr Nirumpama Lal, Professor and Head, Department of Pathology, Dr Sharique Ahmad ,In charge Blood bank and Professor, Department of Pathology ,Dr Nishi Tandon, Professor Department of Pathology & Assistant Dean, Faculty of Allied Health Science.

In the valedictory program the Prof (Dr) S. Riaz Mehdi, Dean Faculty of Allied Health Sciences, Era University addressed the gathering and told them about the Importance of the donation and cause of celebrating this day. Later our Hon'ble Vice Chancellor Era University also addressed the gathering and appreciated the efforts of the students. The Winners of this competion were

honoured with medals and certificates. At last Vote of thanks was delivered by Dr Ekta A, Andriyas, Head, Department of Medical Laboratory Techniques, Faculty of Allied Health Sciences, and Era University.



# **Press Release**;

On the occasion of "World Health Day" Department of Medical Laboratory Techniques, Faculty of Allied Health Sciences & Research, Era University, Lucknow, organized a Poster and Model competition on April 7<sup>th</sup>, 2023.

The theme of the event was "Focusing on Journey to Achieve Health for All" This event was a grand success with the participation of more than 150 students, Faculty members and Non-Teaching Staff under the leadership of Prof (Dr.) Abbas Ali Mahdi, Honorable Vice Chancellor, Era University,

Posters and Models on various aspects of health awareness were prepared and displayed by the students of MLT Department. Prof (Dr.) S. Riaz Mehdi, Dean, Faculty of Allied Health Sciences, Prof. (Dr.) Nishi Tandon, Assistant Dean, Faculty of Allied Health Sciences were on the judge's poster and model competitions.

Prof (Dr.) S. Riaz Mehdi, Dean, Faculty of Allied Health Sciences, has delivered an introductory remark and emphasized on the importance of "World Health Day" and also deliberated on the importance and benefits of yoga in day to day activity for mental and social wellbeing.

Trophies were presented to winners and runners ups and certificates to all the participants. Naini Sharma, Aniket Singh, Sahifa of BSc. MLT 6<sup>th</sup> Semester secured first prize, Mahi Jaiswal of BSc. MLT 6<sup>th</sup> Semester won the second Prize, Divanshu Kashyap ,Zainul Abdeen of DMLT 1<sup>st</sup> Year won the third prize. Prashant, Ayaanuddin, Nitish Kumar of BSc. MLT 6<sup>th</sup> Semester received consolation Prize.

During the programme Dr. Ekta A. Andriyas, Head, Department of MLT. Mr. Imran Hussain, Assistant Professor, Department of MLT, Mr. Tanveer Raza Jafri, Mrs. Sahar Khan, Mrs. Neha Pant, Mrs. Neetu khuswaha, Mr. Abhishek Mishra, Ms. Ilma Khan, Mrs.Asiya Rizvi were present.

# Report

## On Campus Activity

## "Alumni Experience Sharing Session" Series 1

Date & Time - : Saturday, 15th July 2023 from 11:00 AM to 02:00 PM

Name of the event - : "Alumni Experience Sharing Session" Series 1

Venue of the event- : Mini Auditorium, Ground Floor, University Building.

Event held for - : For Medical Laboratory Techniques Students only.

The Placement Cell has organized the event: "Alumni Experience Sharing Session" series 1 with the collaboration of Department of Medical Laboratory Techniques. Dr. Ekta Arpita Andriya, HOD MLT & Mr. Tanvir Raza Jafri, Lecturer & Departmental Placement Coordinator of MLT welcomed the Alumni.

We have invited these 10 Alumni members for this event physically and 01 alumna Online -connected through zoom application from London, United Kingdom.

Alumni shared their life challenges and techniques to overcome fears about career progression with their juniors.

Everyone suggested that knowledge & practice will be the key when you enter your career journey, whether you are in to the job or open your own venture. There are few alumni who setup their own labs in their home town and doing well in their career.

One of our Alumna connected from London and shared their journey from ERA University to Staffordshire University London. She felt so emotional while sharing memories of ERA.





Approx. 168 students of BMLT & DMLT attended the event with full of joy.