



தமிழ்நாடு டாக்டர் அம்பேத்கர் சட்டப் பல்கலைக்கழகம்
The Tamilnadu Dr. Ambedkar Law University



**CLASS REPORT ON VISIT TO THE FORENSIC SCIENCE
DEPARTMENT, MYLAPORE**

11.07.2023

SUBMITTED TO

THE TAMILNADU DR AMBEDKAR LAW UNIVERSITY
CRIMINAL LAW AND CRIMINAL JUSTICE ADMINISTRATION

SUBMITTED BY

II LL.M STUDENTS
CRIMINAL LAW AND CRIMINAL JUSTICE ADMINISTRATION
2021-2023 BATCH



SCHOOL OF EXCELLENCE IN LAW

FIELD VISIT REPORT: FORENSIC SCIENCE DEPARTMENT

Date: 11-07-2023

Venue: Forensic Science Department 30A, Kamarajar Salai, Mylapore, Chennai-4

Students Name list:

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Name of the Faculty: Dr.S.Rajalakahmi

On 11-07-2023, a group of 16 students of the Department of Criminal law and criminal justice administration of the The tamil Nadu Dr Ambedkar Law University had the opportunity to visit the Forensic Science Department. The purpose of the visit was to gain practical insights into the various branches of forensic science and understand their applications in solving crimes and providing justice. The visit covered three major areas: Biological Sciences, Chemical Sciences, and Physical Sciences. Each area provided valuable knowledge related to different aspects of forensic investigation.

Biological Sciences

Anthropology:

During the visit, the students had the opportunity to interact with forensic anthropologists. They were given a presentation on the role of anthropology in forensic investigations, especially in cases involving the recovery and identification of human remains. The anthropologists explained various techniques used to estimate age, sex, stature, and ancestry

from skeletal remains. They also discussed the importance of understanding cultural contexts and rituals related to death and burial practices.

Biology:

The biology section of the Forensic Science Department showcased the importance of DNA analysis in criminal investigations. The students were introduced to the basics of DNA structure and its role as the genetic blueprint of living organisms. They learned about techniques such as polymerase chain reaction (PCR) and DNA sequencing used to extract, amplify, and analyze DNA samples. The department also demonstrated how DNA profiles are compared to identify suspects and establish links between individuals and crime scenes.

Serology:

The serology section focused on the analysis of bodily fluids, particularly blood. Students were introduced to various serological tests used to identify blood groups, detect the presence of specific antigens and antibodies, and determine the origin of biological fluids found at crime scenes. They observed how ELISA and other serological techniques were employed to test samples for the presence of infectious diseases, such as HIV/AIDS and hepatitis. The importance of proper evidence collection and preservation was also emphasized.

Chemical Sciences

Chemistry:

In the chemistry section, the students were introduced to the role of forensic chemists in analyzing different types of physical and chemical evidence. They learned about techniques such as chromatography and spectroscopy used to identify and analyze substances found at crime scenes. The department showcased how chemical analysis can provide crucial evidence in cases involving arson, drug-related crimes, and toxic substances.

Excise, Explosives, and Narcotics:

The department dedicated specific sections to the analysis of excise (alcohol and tobacco-related) substances, explosives, and narcotics. Students were shown how sophisticated equipment and chemical tests are used to identify and analyze these substances. They learned about the classification of narcotics, the detection of explosive residues, and the examination of alcohol levels in forensic cases such as drunk driving incidents.

Prohibition and Toxicology:

The prohibition and toxicology section focused on the detection and analysis of drugs and toxins in biological samples. Students were introduced to the processes involved in toxicology testing, including sample preparation, extraction, and instrumental analysis. They learned about the effects of drugs on the human body, drug metabolism, and the importance of toxicology in determining cause of death and detecting drug-related crimes.

Physical Sciences

Ballistics:

The ballistics section provided insights into the analysis of firearms and their ammunition. Students were shown various types of firearms, including handguns, rifles, and shotguns. They learned about the examination of bullets, cartridge cases, and gunshot residues. The experts explained the principles of ballistics and how the examination of firearm-related evidence can help determine the type of weapon used and establish links between suspects and crime scenes.

Physics:

The physics section showcased the application of physics principles in forensic investigations. Students were introduced to concepts such as trajectory analysis, bloodstain pattern analysis, and accident reconstruction. They learned how physics can provide valuable insights into the dynamics of crime scenes, helping investigators understand the sequence of events and reconstruct the circumstances surrounding a crime.

Computer Forensics

The computer forensics section focused on the examination and analysis of digital evidence. Students were shown the tools and techniques used to recover and analyze data from computers, mobile devices, and other digital media. They learned about the importance of data integrity, digital evidence preservation, and the role of computer forensics in solving cybercrimes and retrieving valuable information for criminal investigations.

The field visit to the Forensic Science Department provided the students with a comprehensive understanding of the various branches of forensic science and their applications in solving crimes. The visit offered valuable insights into the role of biology, chemistry, and physical sciences in forensic investigations. The hands-on experience and interaction with experts in the field enhanced the students' knowledge and sparked their interest in pursuing careers in forensic science. The visit proved to be an enriching experience and highlighted the significance of interdisciplinary approaches in solving complex criminal cases. Overall, the field visit to the Forensic Science Department was a successful and educational experience, providing the students with a practical understanding of the role of biological sciences, chemical sciences, and physical sciences in forensic investigations.

The field visit to the Forensic Science Department was highly beneficial for research purposes.

1. Exposure to Practical Applications: The visit provided firsthand exposure to the practical applications of various scientific disciplines within the field of forensic science. This exposure can serve as a valuable reference for future research projects, allowing researchers to understand the real-world context and challenges associated with different forensic techniques.

2. **Networking Opportunities:** During the visit, students had the opportunity to interact with experts and professionals in the field of forensic science. Building connections and networking with professionals can be advantageous for future research collaborations, obtaining guidance, and accessing resources and facilities that may be helpful for research projects.

3. **Access to Specialized Equipment and Facilities:** Forensic Science Departments often possess state-of-the-art equipment and specialized facilities required for forensic analysis. The visit allowed the students to witness and potentially utilize such equipment, which can be highly advantageous for researchers who may need access to specific instruments or techniques for their research projects.

4. **Research Ideas and Inspiration:** Witnessing the various branches of forensic science and their applications can serve as a source of inspiration for research ideas. The visit may have sparked new research questions or highlighted potential areas of study within forensic science that the students may want to explore further.

5. **Knowledge Expansion:** The visit provided the students with a comprehensive understanding of the different branches of forensic science. This expanded knowledge base can be beneficial when conducting literature reviews, designing research methodologies, and formulating research questions within the field of forensic science.

6. **Practical Skills Development:** The hands-on experience gained during the visit, such as observing techniques, handling equipment, and witnessing forensic analyses, can enhance the students' practical skills. These skills can be directly applicable to research projects that involve forensic analysis or require a basic understanding of forensic techniques.

7. **Interdisciplinary Perspectives:** Forensic science is an interdisciplinary field that combines various scientific disciplines. The visit exposed the students to the interdisciplinary nature of forensic research, emphasizing the importance of integrating knowledge from different fields. This perspective can inspire interdisciplinary research collaborations and foster innovative approaches to addressing research questions.

In summary, the field visit to the Forensic Science Department was highly useful for research purposes. It provided exposure to practical applications, networking opportunities, access to specialized equipment and facilities, research ideas and inspiration, knowledge expansion, practical skills development, and interdisciplinary perspectives. All these factors contribute to enhancing the quality and depth of future research within the field of forensic science.

Infrastructure Analysis of the Forensic Science Department

During the field visit to the Forensic Science Department, the students had the opportunity to observe and assess the infrastructure of the department. Here is an analysis of the infrastructure based on the different areas of forensic science:

1. Biological Sciences:

The infrastructure for biological sciences within the department was well-established and equipped. The laboratory spaces were organized and properly maintained, providing a conducive environment for conducting various biological analyses. The presence of advanced equipment, such as DNA sequencers, PCR machines, and serological testing facilities, indicated a commitment to staying at the forefront of technology in the field. The availability of appropriate safety measures, including biosafety cabinets, personal protective equipment, and waste management systems, demonstrated a strong emphasis on laboratory safety.

2. Chemical Sciences:

The infrastructure for chemical sciences appeared comprehensive and efficient. The department had separate laboratories for different branches, including chemistry, excise, explosives, narcotics, and prohibition. Each laboratory was equipped with necessary chemicals, reagents, and instrumentation for analysis and identification. The storage and handling of potentially hazardous substances seemed well-managed, with proper ventilation systems and safety protocols in place. Overall, the chemical sciences infrastructure reflected a commitment to ensuring accurate and reliable analysis of chemical evidence.

3. Physical Sciences:

The infrastructure for physical sciences, particularly ballistics, physics, and computer forensics, was well-designed and adequately equipped. The ballistics section had a dedicated area for the examination and analysis of firearms, ammunition, and related evidence. It had specialized equipment for firearm comparison, bullet trajectory analysis, and gunshot residue testing. The physics section showcased various tools and resources for bloodstain pattern analysis, accident reconstruction, and other physics-based forensic techniques. The computer forensics section had advanced computers, software, and tools for digital evidence examination and analysis.

Overall, the department's infrastructure demonstrated a commitment to providing a conducive environment for forensic analysis and research. The presence of well-equipped laboratories, advanced instrumentation, and specialized facilities indicated a focus on accuracy, reliability, and efficiency in forensic investigations. The infrastructure also reflected a strong emphasis on safety measures and compliance with relevant regulations and protocols.

In addition to the laboratory infrastructure, the department's administrative facilities appeared organized and functional. The presence of dedicated office spaces, meeting rooms, and storage areas contributed to the smooth operation of the department's activities. The availability of a well-maintained evidence storage facility, with appropriate security measures, was also notable.

It is worth mentioning that during the field visit, the students did not have an opportunity to extensively analyze the entire infrastructure of the department. The analysis presented here is based on the observations made during the visit and may not capture every aspect of the department's infrastructure. However, the overall impression was that the Forensic Science

Department possessed a robust and well-equipped infrastructure to support its various areas of specialization in forensic science.

Overall Conclusion

The field visit to the Forensic Science Department provided the students with a comprehensive understanding of the different branches of forensic science and their applications in solving crimes. The visit offered valuable insights into the role of biological sciences, chemical sciences, and physical sciences in forensic investigations. It was evident that the department's infrastructure was well-designed and equipped to support various forensic analyses, research activities, and administrative functions.

The infrastructure analysis revealed that the department had well-organized laboratory spaces with advanced equipment and instrumentation. The presence of specialized facilities, such as DNA analysis labs, serology testing areas, and ballistics examination rooms, demonstrated a commitment to staying at the forefront of technology and providing accurate and reliable forensic analysis. The implementation of safety measures and compliance with relevant protocols indicated a strong emphasis on laboratory safety.

The administrative facilities were also well-maintained, providing dedicated spaces for office work, meetings, and evidence storage. The overall functionality and organization of the administrative infrastructure contributed to the smooth operation of the department's activities.

The field visit not only provided exposure to the practical aspects of forensic science but also facilitated networking opportunities with experts and professionals in the field. Building connections with professionals can be advantageous for future research collaborations, obtaining guidance, and accessing resources and facilities that may be helpful for research projects.

The visit also inspired the students with research ideas and expanded their knowledge base, which can be beneficial when conducting literature reviews, designing research methodologies, and formulating research questions within the field of forensic science.

In conclusion, the field visit to the Forensic Science Department was a successful and educational experience, providing the students with practical insights into the infrastructure, practical applications, and interdisciplinary nature of forensic science. The well-designed and equipped infrastructure, along with the exposure to experts and professionals, will contribute to enhancing the quality and depth of future research within the field of forensic science.

PHOTOGRAPHS TAKEN AT THE FORENSIC SCIENCE DEPARTMENT





ACTIVITIES OF BALLISTICS DIVISION

S.No.	TYPE OF EXAMINATION UNDERTAKEN	PURPOSE OF EXAMINATION
1	Examination of Firearms	i) Whether a suspected device is a firearm as defined in the Arms Act 1959; ii) Is it in working condition? ; iii) Was it used for firing; iv) Is it prone to accidental discharge; and, v) to find out its type, make and caliber.
2	Examination of fired bullets/cartridge cases	i) To find out their type, make and calibre; and, ii) the probable firearm which was used during the commission of offence
3	Examination of suspected firearm/s and fired bullets and cartridge cases found at the scene of crime and the ones retrieved from the body of victim	To find out whether the bullets and cartridge cases were fired from the suspected firearm or not.
4	Examination of target materials [clothing, glass pane, wall, doors, automobiles etc.,]	i) To find out whether the holes or marks of impact were caused by the impact of projectiles fired from a firearm; if so, probable nature and type of firearm used; ii) Possibility of ricochet in the alleged incident; and, iii) Estimation of muzzle to target distance, if suspected firearm is seized.
5	Gun Shot Residue analysis on the swabbing of shooters' hand/feet	To find out the shooter and to ascertain the possibility of suicide/homicide.
6	Examination of Air-Rifle/Pistol	To find out whether it is exempted from the provisions of Arms Act for the purpose of license or not.



