

Shri Guru Ram Rai Institute of Medical & Health Sciences College of Nursing

Patel Nagar, Dehradun - 248 001

Ref.No: SGRRU/CON/2025/ - 843

Date: 27/02/2025

NOTIFICATION FOR VISIT FORENSIC SCIENCE LABORATORY

This is to inform you that SGRRIM & HS College of Nursing B.Sc. Nursing & M.Sc. Nursing Students (2024-25 batch) is planning to visit FORENSIC SCIENCE LABORATORY, PANDITWARI, DEHRADUN on 27 & 28 February 2025 as a part of their curriculum.

Thanks & Regards, Dean, Nursing Principal College of Nursing S.G.R.B.I.M.H.S. Patel Nagar, Dehradun

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Shri Guru Ram Rai Institute of Medical & Health Sciences College of Nursing

Patel Nagar, Dehradun - 248 001

Ref No.: SGRRIM&HS/CON/2025/ - 3107

Date: 13/02/2025

To,

The Director Forensic Science Laboratory Panditwari, Dehradun

Sub: Permission to visit forensic Science laboratory - Regarding

Respected Sir,

This is to kind information that Shri Guru Ram Rai institute of Medical & Health Sciences, College of Nursing, Patel Nagar, Dehradun runs ANM, GNM, under graduates and Post Graduate Nursing programme. As per Indian Nursing Council curriculum, the students required to visit to your forensic science Lab. We feel it will be fulfill that the students with academic background have glimpse of lab in order to have a better appreciation of practical applications of theory. Hereby I request you to kindly permit our nursing students to your forensic Lab.

S.No.	Course	No. of Students	Date
1	Basic B.Sc. (N) 5th Semester	106	
2	M.Sc. Nursing 1 st Year	23	28-02-2025
3	M.Sc. Nursing 2 nd Year	13	

I will be very thankful to you for permitting our students to visit the forensic Lab.

Thanking You.

Principal (Dr. G. Ramalakshmi) Principal College of Nursing S.G.R.R.I.M.H.S. Patel Nagar, Dehradun

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SGRRU, SGRRIM&HS COLLEGE OF NURISNG PATEL NAGAR, DEHRADUN FORENSIC SCIENCE LAB VISIT REPORT

Date of Visit: 27/02/2025 & 28/02/2025

Location:Forensic Science Lab 19, Chakrata Rd, near Police Chauwki, Phase 2, Panditwari, Dehradun, Uttarakhand 248007

Participants: M.Sc. Nursing I & II Year, B.Sc. Nursing Vth Semester

Faculty Incharge:

- Dr. Ponmari. K
- Prof. Dineshwori
- Mrs. D.Roalind Beulah
- Mrs. Rachel
- Mrs. Shivani
- Ms. Anjali

As a part of our nursing curriculum, we have visited Forensic Science Laboratory (FSL) in Dehradun on 27.02.2025 & 28.02.2025 with the guidance of our faculty members. We welcomed by our Forensic scientist Dr. S.K. Sharma, Joint Director, FSL-Uttarakhand and Dr. M.K.Agrawal, Dy.Director, FSL-Uttarakhand. By following this our Respected dean Prof. Dr. G. Ramalakshmi were given token of love by momentum and gift to Forensic scientist.

The Forensic Science Laboratory (FSL) in Dehradun, Uttarakhand, serves as a pivotal institution in the realm of criminal investigations, providing scientific analysis of evidence to aid the justice system. This report encapsulates the insights and knowledge gained during our visit to the FSL, Dehradun, highlighting its various divisions, methodologies, and contributions to forensic science.

A forensic science laboratory (FSL) plays a crucial role in crime investigations by analyzing evidence scientifically to aid in the administration of justice. This report presents a detailed account of our visit to a forensic science laboratory, covering the various divisions, techniques, and real-life case studies demonstrated during the visit.

The visit provided an opportunity to observe forensic experts in action, understand the scientific methods used in criminal investigations, and explore how forensic science contributes to law enforcement and legal proceedings.

Objectives of the Visit

The main objectives of our visit to the forensic science laboratory were:

- ✤ To understand the functioning of a forensic science laboratory.
- ✤ To observe forensic techniques used in crime investigations.
- ✤ To interact with forensic experts and learn about their roles.
- ✤ To analyze the significance of forensic science in criminal justice.
- ✤ To study real-life case applications of forensic analysis.

Overview of Forensic Science

Forensic science is the application of scientific principles to solve crimes. It involves the collection, preservation, and examination of evidence to establish facts in legal cases. It includes multiple branches, such as toxicology, ballistics, fingerprint analysis, digital forensics, and DNA profiling.

The forensic laboratory is equipped with state-of-the-art instruments that help experts analyze different types of evidence, including biological samples, chemical substances, firearms, and electronic data.

Forensic Science Laboratory

The forensic science laboratory we visited was a government facility catering to various law enforcement agencies. It consisted of multiple specialized divisions handling different types of forensic investigations.

The lab was well-organized, with strict security and contamination-control protocols to ensure the integrity of evidence. We were guided through the facility by forensic scientists who explained their work and demonstrated various techniques used in forensic analysis.

Departments in the Forensic Science Laboratory

i. Biology and Serology Division

This division deals with the analysis of biological fluids such as blood, semen, saliva, and other bodily secretions. Techniques such as blood grouping, enzyme analysis, and immunoassays are used to establish connections between suspects, victims, and crime scenes.

We observed the forensic experts demonstrating how they detect blood stains using chemical reagents such as luminol and Kastle-Meyer tests.

ii. DNA Analysis Unit

DNA profiling is one of the most critical tools in forensic investigations. This unit extracts and analyzes DNA from various biological samples to identify individuals. Polymerase Chain Reaction (PCR) and Short Tandem Repeat (STR) analysis are commonly used techniques.

A forensic scientist demonstrated how DNA is extracted, amplified, and compared using electrophoresis techniques.

iii. Toxicology Division

This department analyzes poisons, drugs, alcohol, and other chemical substances in biological samples. It plays a vital role in cases of poisoning, drug overdose, and substance abuse.

Gas Chromatography-Mass Spectrometry (GC-MS) and High-Performance Liquid Chromatography (HPLC) are commonly used techniques to identify toxic substances.

iv. Ballistics and Firearms Division

Ballistics experts examine firearms, bullets, and cartridge cases to determine their origin and match them with weapons used in crimes. They study firing mechanisms, gunshot residues, and bullet trajectories. We observed the use of comparison microscopes to match bullets and test-fire weapons.

v. Questioned Documents Examination

This department examines disputed documents, including forged signatures, counterfeit currency, and handwriting analysis. Techniques such as ultraviolet (UV) light examination, electrostatic detection, and ink analysis are used.

A forensic document examiner showed us how handwriting comparisons are performed using digital magnification.

vi. Fingerprint Analysis

Fingerprint identification remains one of the oldest and most reliable forensic methods. Experts use techniques like powder dusting, cyanoacrylate fuming, and Automated Fingerprint Identification Systems (AFIS) to compare prints.

We witnessed how latent fingerprints are developed using ninhydrin and fingerprint powders.

vii. Cyber Forensics

This division deals with digital evidence, including data retrieval from computers, mobile phones, and other electronic devices. Cyber forensic experts investigate hacking, cyber fraud, and data breaches. A demonstration of how deleted data is recovered from hard drives was particularly intriguing.

viii. Forensic Psychology and Polygraph Examination

Forensic psychologists study behavioral aspects of suspects, conduct criminal profiling, and administer polygraph (lie detector) tests to detect deception.

We observed a polygraph test demonstration, where physiological responses such as heart rate and respiration were measured.

ix. Crime Scene Investigation

Crime scene experts are responsible for collecting and preserving evidence from crime scenes. Techniques like blood spatter analysis, footprint analysis, and evidence packaging were demonstrated during our visit.

x. Case Studies and Demonstrations

During our visit, we were presented with real-life case studies where forensic science played a key role in solving crimes.

- ✤ A homicide case where DNA evidence linked the suspect to the crime scene.
- ✤ A drug case where forensic toxicology identified narcotic substances in a suspect's blood.
- * A cybercrime case involving digital forensics to track fraudulent financial transactions.

Each case study demonstrated the accuracy and reliability of forensic science in crime investigations.

Interaction with Forensic Experts

We had the opportunity to interact with forensic scientists and learn about their experiences, challenges, and the impact of their work. They shared insights on:

- ✤ The importance of proper evidence collection.
- ✤ The challenges of contamination and chain of custody.
- \blacklozenge The role of forensic testimony in court proceedings.

Importance of Forensic Science in Criminal Justice

Forensic science provides scientific evidence that helps law enforcement agencies solve crimes. It aids in:

- ✤ Identifying suspects and victims.
- ✤ Establishing timelines and sequences of events.
- * Ensuring fair trials by providing objective evidence.

Challenges Faced in Forensic Investigations

Despite its importance, forensic science faces challenges such as:

- ✤ Backlogs in forensic labs due to a high volume of cases.
- ✤ Contamination risks affecting evidence integrity.
- * Technological advancements making cybercrimes harder to trace.

Ethical Considerations in Forensic Science

Forensic scientists must maintain objectivity, confidentiality, and integrity. Ethical concerns include:

- ✤ Avoiding bias in forensic examinations.
- Ensuring the accuracy of reports and testimonies.
- ✤ Adhering to legal and scientific standards.

Conclusion

The forensic science laboratory visit was an enlightening experience, providing valuable insights into the scientific techniques used in crime investigations. It highlighted the crucial role forensic experts play in the criminal justice system and reinforced the importance of accuracy, ethics, and technological advancements in forensic science. We have completed our visit with giving thanks to forensic scientist.





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DATA DECRYPTION TECHNIQUES

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ATTENDANCE SHEET

SGRRU, SGRRIM&HS COLLEGE OF NURSING PATEL NAGAR, DEHRADUN FORENSIC SCIENCE LAB VISIT ON 27/02/2025

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