



**Semester: IX**

**B.A.LL.B./B.B.A.LL.B.**

**Paper Code: SPC3-903**

**Forensic Science**

**Credit-04**

**Brief Introduction:**

Forensic Science is an interdisciplinary field that combines investigative techniques and scientific principles to analyse physical evidence in legal contexts. It plays a critical role in extricating mysteries and bringing justice to the forefront of criminal investigations. Forensic scientists delve into methodically examining evidence collected from crime scenes, employing trailblazing technologies to identify perpetrators, establish timelines, and reconstruct events. This subject provides a comprehensive exploration of the diverse facets of forensic science, from crime scene investigation and evidence analysis to the application of specialised methodologies like DNA profiling, ballistics, digital forensics, etc. Through hands-on experiences and theoretical insights, students will appreciate the scientific rigour and ethical responsibilities underpinning the field, preparing them to make significant contributions to the pursuit of truth and justice within the legal system.

**Course Objectives:**

1. To introduce students to the principles and techniques used in forensic science
2. To develop a comprehensive understanding of the various forensic science disciplines and their applications.
3. To equip students with the knowledge and skills to analyse and interpret forensic evidence.
4. To understand the psychological, ethical and legal implications of forensic science practices.

**Learning Outcomes:**

By the end of this course, students should be able to:

1. Explain the fundamental concepts and principles of forensic science.
2. Identify and describe different types of forensic evidence and their significance in criminal investigations and demonstrate proficiency in collecting, preserving, and analysing forensic evidence at a crime scene.
3. Understand the role of forensic science and forensic psychology in the legal system and its importance in court proceedings and demonstrate awareness of ethical issues and challenges in forensic science practice.

4. Apply scientific methods and techniques to analyse various types of evidence, such as fingerprints, DNA, digital forensic, ballistics, etc., and interpret and report forensic findings clearly and accurately.

## **Module-I**

### **Forensic Science and Law**

- 1.1 Nature, Need and Scope of Forensic Science;
- 1.2 Forensic Science Laboratories and Forensic Science Institutions in India;
- 1.3 Services Provided by Forensic Science Investigators; Functions and Responsibilities of Forensic Scientist;
- 1.4 Importance of Forensics in the Criminal Justice System;
- 1.5 Forensic Principles: Locard's Law of Exchange, Law of Individuality, Law of Comparison, Law of Progressive Changes and Law of Probability; Branches of Forensic Science.

## **Module-II**

### **General Principles of Crime Scene Investigation and Evidence Collection**

- 2.1 Crime Scene Investigation – Process, Planning, Organization and Coordination, Importance, Problem and Evaluation;
- 2.2 Preservation of the Scene and its Evidence, Methods for the Preservation of Crime Scene and Evidence;
- 2.3 Crime Scene Management: Documentation of the Scene – Photography/Videography and Sketching, Recognition and Recovery of Physical Evidence, Possession Log;
- 2.4 Forensic Evidence: Physical, Biological, Chemical, Digital and Psychological; Significance of “Chain of Custody” and Expert Witness;
- 2.5 Forensic Report: Forensic Expert, Forensic Report, Formats of Forensic Report, Court Testimony, Pre-Court Preparations and Court appearance, Examination in chief, Cross Examination and Re-examination.

## **Module-III**

### **Forensic Psychology and Admissibility of Forensic Evidence**

- 3.1 Definition and Fundamental Concepts of Forensic Psychology; Role of Forensic Psychology in the Investigation of Crime;
- 3.2 Criminal Profiling, Overview of Polygraph (Lie Detection), Narco Analysis, Brain Mapping: their Applications, Legal Implications and Evidentiary Value;
- 3.3 Psychology of Evidence — Eyewitness testimony, Confession Evidence;
- 3.4 Types of Forensic Evidence- DNA Profiling Technique, Ballistics, Fingerprints, Forensic Toxicology. DNA as Conclusive Proof;
- 3.5 Admissibility of Forensic Evidence in Court: Admissibility of Expert Testimony and Evidence in Court, Frye Standard and Daubert standards.

## **Module-IV**

### **Scientific Investigative Techniques**

- 4.1 Ballistics - Classification of firearms/ammunition, firearms evidence collection and its admissibility in Law;
- 4.2 Fingerprint - Classification of fingerprints, method of collection, judicial response and admissibility in Law;
- 4.3 DNA Fingerprinting - DNA profiling, Application of DNA, Admissibility of DNA Evidence, Judicial response and DNA Technology;
- 4.4 Toxicology and Chemical Analysis - Classification of Poisons, Significance of Post Mortem. Types of Illicit Drugs;
- 4.5 Digital Forensic and Cyber Forensics - Types of cybercrimes, admissibility of electronic evidence, Cyber Security and Cyber Hygiene.

#### **Prescribed Legislation:**

- 1. The Constitution of India, 1950.
- 2. Information Technology Act, 2000.
- 3. The Indian Evidence Act, 1872
- 4. The Code of Criminal Procedure, 1973.

#### **Prescribed Books:**

- 1. Das, P. "Forensic Evidence: Admissibility in Criminal Justice System", Eastern Law House Pvt. Limited, 2019, Delhi.
- 2. Holt, T.J., A M Bossler, Spellar, KCS "Cyber Crime and Digital Forensics: An Introduction" Routledge, England, 2022.
- 3. Dogra, T D, CA Rudra "Lyon's Medical Jurisprudence and Toxicology", Delhi Law House, Delhi, 2016
- 4. Kumar, K. "Forensic Ballistics in Criminal Justice" Eastern Book Company, Delhi, 2015.
- 5. Sharma, B. R. "Forensic Science in Criminal Investigation and Trials" Lexis Nexis, New Delhi, 2021.

#### **Prescribed Readings:**

- 1. Satish, S., Phadke, G., & Rawtani, D. *FUTURE ASPECTS OF MODERN FORENSIC TOOLS AND DEVICES*, 393-413. <https://doi.org/10.1002/9781119763406.ch16>
- 2. Singhal, Kanhaiya, *DOCTRINAL ANALYSIS OF THE EVOLUTION OF FORENSIC EVIDENCE IN THE INDIAN CRIMINAL JUSTICE SYSTEM* (June 1, 2023) available at <https://dx.doi.org/10.2139/ssrn.4465730>.
- 3. Minzière, V. R., Gassner, L., Gallidabino, M., Roux, C., & Weyermann, C. (2023). The relevance of gunshot residues in forensic science. *Wiley Interdisciplinary Reviews: Forensic Science*, 5(1), e1472.

<https://doi.org/10.1002/wfs2.1472>

4. Baryah, N., Krishan, K. & Kanchan, T., *UNUSUAL FINGERPRINT PATTERNS IN HUMANS: IMPLICATIONS FOR FORENSIC CASEWORK AND FINGERPRINT RESEARCH*, Sci Nat 110, 5 (2023).
5. C.E. Pratap, *EVALUATING THE SCIENTIFIC VALIDITY OF FORENSIC EVIDENCE IN CRIMINAL TRIALS: ISSUES AND CHALLENGES* 2018 4 MLJ (Crl) 5.
6. Shubham Singh Bagla, *ELECTRONIC EVIDENCE AND CYBER FORENSICS IN INDIA* II HPNLU. L. J. 33 (2021).
7. Charan, J Lakshmi; Manikyam, K Sita. *FORENSIC SCIENCE AND ITS LIMITATIONS IN RAPE AND MURDER CASES IN INDIA*, Journal of Forensic Science and Medicine 9(1), p 91-97, Jan-Mar 2023. | DOI: 10.4103/jfsm.jfsm\_98\_21.

### **Suggested Readings:**

1. Saferstein, Richard "Criminalistics: An Introduction to Forensic Science", London, 2017.
2. Chatterji, Ishita "Law of Forensic Science", Central Law Publication, Prayagraj, 2017
3. Kalipatnapu, N. Rao "Forensic Toxicology- Medico-Legal Case Studies" 2012,
4. Bernard Glueck "Studies in Forensic Psychiatry, EBC Publishing Pvt. Limited, 2015.

  
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