

IL: 509 Forensic Science and Crime Detection Methods

Unit – 1: The role of Forensic Science in Criminal Cases:

- a. History of Forensic Science
- b. Forensic Science Laboratories and their utilization in Police work
- c. The basic question in investigation - Qui Bono
- d. Crime Scene
- e. Locard's Principles of Exchange
- f. Discovery of traces of physical evidence
- g. Systematization and classification of physical evidence and comparison with suspected material
- h. Preservation of the Crime Scene
- i. Value of Trace Evidence

Unit – 2: The Establishment of Identity

- a. The Establishment of Identity of Individuals: -
 - a. Footprints, hair, skin, blood grouping; physical peculiarities.
- b. The Establishment of the Identity of Physical Objects by shape and size:
 - a. Identifying marks and impressions made by physical objects;
 - b. Shoes prints, type and tread marks, die and tool marks, upturn of fracture marks.
- c. The Establishment of the Identity of Physical Objects by Physical and Chemical Analysis:
 - a. Paints, colored objects metal, alloys, china and the earthen wares: cements, Plaster, bricks, dusts, soil minerals, plastics.

Unit – 3: Questioned Documents and Ballistics

- a. Questioned Documents
- b. Identification of Handwriting and Writing Material Identification
 - a. Paper, pen, pencil and ink
- c. Types of Forgery and their detection
- d. The Identification of Fire-Arms and Cartridges and Related Problems
- e. Evidentiary value of details of injuries;
- f. Traces left by the weapon used: its range and direction;
 - a. The shape and directions of blood drops and their evidentiary value,
 - b. The discovery of blood and semen stains on various objects
- g. ➤ Accidental deaths and suicides.

Unit – 4: Modern Scientific Techniques and Law relating to expert and Scientific Evidence:

- a. Narco-Analysis Tests
- b. Polygraph Test
- c. Brain Mapping Test
- d. Lie Detector Test & others
- e. Value of Expert Evidence
- f. Special Provisions in Cr. P.C. related to Expert attendance in court
- g. Judiciary on Expert Opinion

Suggested Reading: -

1. B.S. Nabar: Forensic Science in Crime Investigation
2. Sharma B.R.: Forensic Science.
3. 3.Forensic Science in criminal Investigation Dr. Jaishankar And Amin
4. 4.Fundamentals of Forensic Science by Max M. Houck, Jay Siegel
5. 5. Modern Criminal Investigation: Harry Soderman and John J.O.Conell(Published by Funk &Wagnalls Co.Inc.,New York)
6. 6. Criminal Investigation: PaulL. Kirk, ph.D. (Published by inter science publishers, Inc.,(New York).
7. 7. Criminal Investigation: Cr.A and Cross. (Published by sweet &Maxwell, Limited, London).
8. 8. firearms, Forensic ballistics, Forensic chemistry and criminal jurisprudence: Gour, A.N.:
9. 9. Forensic chemistry and scientific criminal investigation.: Lucas A.
10. 10. Methods of forensic science (Vol. I): Lund quist. F.: