Fundamentals of Forensic Science

Paper II

**Course Objective:** This course would introduce the students with major divisions of Forensic Science. The students will able to know different types evidences and their analysis. They will be acquainted with the essential characteristics of questioned document and fingerprint examination. The course shall also expose them to different types of physical, chemical and biological evidences in relation to the crime and their examination.

**Course Outcome:** As a consequence of this course, students will have the following understanding-

**CO 1:** Introduction to some major branches of Forensic Science

**CO 2:** Various types of evidences and their Forensic significance.

**CO 3:** Basics of questioned document and fingerprint examination.

**CO 4:** Different types of evidences and their Forensic screening for comparison, classification and identification.

**Forensic Psychology:** Introduction to Forensic Psychology. limitation and Advantages of various methods of Lie Detection such as Polygraph, Brain Fingerprinting and Narcoanalysis.

**Questioned Document:** Introduction to Questioned Documents. Types of Forgeries. Handwriting Characteristics, Identification, and Analysis of Handwriting. Signature Examination.

**Fundamentals of Forensic Biology and Anthropology:** Forensic importance of biological evidences such as hair, fibers, grains, seeds, leaves, wood, diatoms, blood, semen, saliva. Identification of human bones. Determination of age and sex from skeletal remains.

**Introduction to Forensic Chemistry and Toxicology:** Analysis of various chemicals such as alcoholic beverages, arson debris, drugs, etc. Classification of poison. Sign and symptoms of common poisons. Collection and analysis of viscera.

**Forensic Ballistics and Explosives:** Introduction to Ballistics (internal, external and terminal), firearms, ammunition, cartridges, propellants, wads, bullets, pellets, bore etc. Different firearm phenomenon such as ricochet, choking and yawing. Wound ballistics and their significance. Introduction and Classification of various explosives. GSR.

**Suggested Readings**

1. Byrd, M., 2001. Crime Scene Evidence: A Guide to the Recovery and Collection of Physical Evidence. CRC Press: Boca Raton.
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4. Gardner, R. M. and Krouskup, D., 2012. Practical Crime Scene Processing and Investigation. CRC Press.
5. Heard, B.J., 1997. Handbook of Firearms and Ballistics. Jhon Willey, England.
6. Hilton, O., 1982. The Scientific Examination of Questioned Document. Elsevier North Holland Inc., New York.
7. Huber, A. R. and Headrich, A.M., 1999. Handwriting Identification: Facts and Fundamental. CRC Press, London.
8. James, S.H. and Nordby J.J., 2003. Forensic Science: An introduction to Scientific and investigative techniques. CRC Press, USA.
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11. L.J. Kaplan, 2001. A laboratory manual for the introduction to the Crime Lab. Williamstown, Massachusetts.
12. Modi, J.K. (1988): Medical Jurisprudence and Toxicology, N.M. Tripathi Pvt. Ltd., India.
13. Moenseens, A.A., Starrs, J.E., Henderson, C.E. and Inabare, F.E., 1995. Scientific Evidence in Civil and Criminal cases, 4th edition. Foundation Press, New York.
14. Saferstein, R., 2001. Criminalistic: An Introduction to Forensic Science, 7th edition. Prentice-Hall, New Jersey.
15. Sharma, B.R., 2019. Forensic Science in Criminal Investigation & Trials, 6th ed. Lexis Nexis: India.
16. Siegel, J.A.; Saukko, P.J. and Houck, M. M., 2013. Encyclopedia of Forensic Sciences. Academic Press, London.
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