

B.Sc. Forensic Science: Semester-IV
EST 502: Questioned Document and Fingerprint

Teaching Scheme	Examination Scheme
Lectures: 3 hrs/Week	Class Test - 17 Marks
Tutorials: 1 hr/Week	Teachers Assessment - 6 Marks
Credits: 4	Attendance - 12 Marks
	End Semester Exam - 70 marks

Course Objectives: After studying this paper the students will know

- The importance of examining questioned documents in crime cases.
- The tools required for examination of questioned documents.
- The significance of comparing hand writing samples.
- The importance of detecting frauds and forgeries by analyzing questioned documents.
- The fundamental principles on which the science of fingerprinting is based.
- Fingerprints are the most infallible means of identification.
- The world's first fingerprint bureau was established in India.
- The method of classifying criminal record by fingerprints was worked out in India, and by Indians.
- The physical and chemical techniques of developing fingerprints on crime scene evidence.
- The significance of foot, palm, and lip prints.

Unit 1: Introduction to Questioned Documents

Definition of questioned documents. Types of questioned documents. Preliminary examination of documents. Basic tools needed for forensic document examination.

Instruments used in Document Examination

Ultraviolet, visible, infrared and fluorescence spectrophotometer, photomicrography, microphotography, Video Spectral Comparator, Electrostatic Detection Apparatus.

Unit 2: Comparison of Documents

Determining the relative age of documents. Comparison of handwriting. Development of individuality in handwriting. Natural variations and fundamental divergences in handwritings. Class and individual characteristics. Merits and demerits of exemplar and non-exemplar.

Standards for Comparison of Handwriting

Comparison of paper, ink, printed documents, typed documents, Xeroxed documents.

Unit 3: Forgeries

Alterations in documents, including erasures, additions, over-writings and obliterations. Indented and invisible writings. Charred documents. Examination of counterfeit Indian currency notes, passports, visas and stamp papers. Disguised writing and anonymous letters

Unit 4: Basics of Fingerprinting

Introduction and History. Biological basis of fingerprints. Formation of ridges. Fundamental principles of fingerprinting.

Classification of fingerprints

Fingerprint patterns. Ridge characters/minutiae. Plain and rolled fingerprints. Ridge Tracing and Ridge Counting. Types of Fingerprints found at Crime Scene.

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Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

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Bareilly

Unit 5: Fingerprint Identification

Classification and cataloguing of fingerprint record Automated Fingerprint Identification System Significance of poroscopy and edgeoscopy Ten Digit Classification Single Digit Classification

Development of Latent Fingerprints

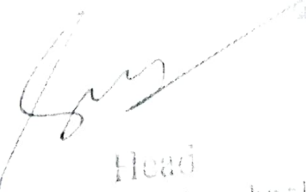
Constituents of sweat residue Latent fingerprints' detection by physical and chemical methods Preservation and lifting of developed fingerprints Digital imaging for fingerprint enhancement Fingerprinting the deceased


Other Impressions

Importance of footprints Casting of foot prints, Electrostatic lifting of latent foot prints Podogram Palm prints and their historical importance Lip prints - Nature, location, collection and examination of lip prints

Suggested Readings

1. B R Sharma, *Handwriting Forensics*, Universal Law Publishing - An imprint of LexisNexis
2. Wilson R Harrison, *Suspect Documents: Their Scientific Examination*, Burnham, Incorporated
3. Albert S Osborn, *Questioned Document*, Nelson-Hall, Inc
4. O. Hilton, *Scientific Examination of Questioned Documents*, CRC Press, Boca Raton (1982).
5. R.N. Morris, *Forensic Handwriting Identification: Fundamental Concepts and Principles*, Academic Press, London (2000)
6. E. David, *The Scientific Examination of Documents - Methods and Techniques*, 2nd Edition, Taylor & Francis, Hants (1997)
7. J.E. Cowger, *Friction Ridge Skin*, CRC Press, Boca Raton (1983).
8. D.A. Ashbaugh, *Quantitative-Qualitative Friction Ridge Analysis*, CRC Press, Boca Raton (2000).
9. C. Champod, C. Lennard, P. Margot an M. Stoilovic, *Fingerprints and other Ridge Skin Impressions*, CRC Press, Boca Raton (2004).
10. Lee and Gaenslen's, *Advances in Fingerprint Technology*, 3rd Edition, R.S. Ramotowski (Ed.), CRC Press, Boca Raton (2013).


Head
Department of Biotechnology
Invertis University, Bareilly (U.P.)


Dean
Faculty of Science
Invertis University, Bareilly (U.P.)


Registrar
Invertis University,
Bareilly