

B.Sc IVth Semester

LS/FSC/SEC/402-L

Skill Enhancement Course (SEC-2)

Handwriting Identification and Recognition

Learning Objectives: After studying this paper the students will know –

- a. The importance of examining questioned documents in crime cases.*
- b. The tools required for examination of questioned documents.*
- c. The significance of comparing hand writing samples.*
- d. The importance of detecting frauds and forgeries by analyzing questioned documents.*

Unit 1: Handwriting Identification

Basis of handwriting identification. Characteristics of handwriting – scope and application. Class and individual characteristics. Arrangement, alignment, margin, slant, speed, pressure, spacing, line quality, embellishments, movement and pen lifts. Factors influencing handwriting – physical, mechanical, genetic and physiological.

Unit 2: Handwriting Examination

Basis of handwriting comparison. Collection of handwriting samples. Forgery detection. Counterfeiting. Examination of altered and erased documents. Tools used in handwriting examination.

Unit 3: Handwriting Recognition

Basis of handwriting recognition. Off-line and on-line handwriting recognition. Steps involved in handwriting recognition – pre-processing, feature extraction and classification. Applications of handwriting recognition.

Unit 4: Basic tools for examination of Documents

Application of Basic tools for the examination of Questioned document, Ultraviolet, Visible and Fluorescence Spectroscopy. Photomicrography, Microphotography. Video Spectral Comparator, Electrostatic Detection Apparatus.

Suggested Readings:

1. O. Hilton, Scientific Examination of Questioned Documents, CRC Press, Boca Raton (1982).
2. A.A. Moenssens, J. Starrs, C.E. Henderson and F.E. Inbau, Scientific Evidence in Civil and Criminal Cases, 4th Edition, Foundation Press, New York (1995).
3. Albert S. Osborn; Questioned Documents, 2nd Ed., Universal Law Pub., Delhi.
4. Wilson R. Harrison; Suspect Documents Their Scientific Examination.
5. Saferstein, Criminalistics: An Introduction to Forensic Science. Prentice, Hall.
6. Sharma, B.R.: Forensic Science in Criminal Investigation and Trials, Central Law Agency, Allahabad, 1974.

Handwritten signatures:
1. *tshe*
2. *wh*
3. *ab*

B.Sc IIIrd Semester

LS/FSC/SEC/301-L

Skill Enhancement Course (SEC-1)

Introduction to Biometrics

Learning Objectives: After studying this paper the students will know –

- a. The fundamental principles on which the science of fingerprinting is based.
- b. Fingerprints are the most infallible means of identification.
- c. The world's first fingerprint bureau was established in India.
- d. Biometrics uses in different aspects.
- e. Different types of Biometric parameters

Unit 1: Definition of Biometrics, Features and function of biometric system, working of biometrics, Classification of biometric systems – physical and behavioral. Strength and weakness of physical and behavioral biometrics.

Unit 2: Physical Biometrics: Fingerprints, Iris, Retina, Facial recognition, Hand geometry, DNA.

Unit 3: Behavioral Biometrics: Speaker recognition, Signature, Gait biometrics.

Unit 4: Biometric parameters: FM, FNM, FTC, FTE, FAR, FRR, EER, ROC, DET; Emerging Biometric Technologies.

Suggested Readings:

1. J.E. Cowger, Friction Ridge Skin, CRC Press, Boca Raton (1983).
2. D.A. Ashbaugh, Quantitative-Qualitative Friction Ridge Analysis, CRC Press, Boca Raton (2000).
3. C. Champod, C. Lennard, P. Margot an M. Stoilovic, Fingerprints and other Ridge Skin Impressions, CRC Press, Boca Raton (2004).
4. Lee and Gaensleen's, Advances in Fingerprint Technology, 3rd Edition, R.S. Ramotowski (Ed.), CRC Press, Boca Raton (2013).

