

POOL OF GENERIC ELECTIVE (GE) COURSES FOR ODD SEMESTERS

Forensic and Criminal investigations

GENERIC ELECTIVE -1 (GE-1)

Forensic and Criminal investigations

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical / Practice		
Forensic and Criminal investigations – GE-1	04	03	Nil	01	Passed 12 th with Science	NIL

Course Objectives:

- ☐ Give exposure of Forensic Science to students which focuses on the investigation process of a crime.
- ☐ Enhance understanding of forensic applications and criminal investigations by teaching and research.
- ☐ Develop skills in forensic identification and problem-solving methods.
- ☐ Keep up to date knowledge about all recent developments and emerging trends in Forensic science and criminal investigation.

Course Learning Outcomes:

- ☐ Understand the aim, concept and significance of Forensic Science and Criminal Investigation.
- ☐ To make aware about recent techniques and developments of Forensic Science and Criminal Investigation.

Unit 1: Forensic Science, Crime Scene Management and criminal investigation (10 Hours)

Introduction, history, development, laws and branches of Forensic Science.

Organizational set-up of Forensic science laboratories.

Crime scene protection, isolation, documentation, sketching, field notes and photography.

Definition, concept, types and scope of crime, various control and prevention methods of crime.

Criminology, criminal anthropology and criminal law

Unit 2: Forensic Ballistics and Explosives (5 Hours)

History, background, classification and characteristics of Firearms

Internal, External, Terminal (wound) ballistics

Classification, synthesis and characteristics of explosives.

Examination and identification of firearms and explosives evidences.

Unit 3: Forensic Chemistry and toxicology (10 Hours)

Introduction, sampling, presumptive, screening and analytical techniques in Forensic Chemistry.

Definition, classification and extraction of poisons.

Toxicological techniques used in poisoning cases.

Classification of drugs, Field and laboratory tests of drugs of abuse.

Unit 4: Questioned Documents and fingerprint examination (10 Hours)

Classification of forensic documents, importance of natural variation and disguised writing

Class and individual characteristics of handwriting and documents examination.

History and classification of fingerprints, Conventional and modern methods of developing latent fingerprint.

Automated Fingerprint Identification System (AFIS).

Unit 5: Forensic anthropology, Serology and DNA profiling (10 Hours)

Personal identification of living and non- living individual through various anthropological techniques.

Forensic morphometric techniques of skeleton remains, Human and non-human identification.

Sex determination, stature and age estimation from skeleton remains

History, biochemistry and genetics of ABO, Rh, MN and other blood systems. Blood pattern analysis and blood stains ageing.

DNA profiling and its application in criminal and civil investigations.

Practical (30 Hours)

1. Descriptive study of organizational structure of a forensic science laboratory.
2. Interpretation of crime scene notes, photos, sketches, crime scene reconstruction and mock crime scene investigation.
3. Linkage of suspected bullet and cartridge case with the class and individual characteristics of firearms.
4. TLC and spot test for different toxic and drugs substances
5. Forensic identification of class and individual characteristics of handwriting
6. Examination of passports and currency notes
7. Various powder and chemical methods used for latent fingerprints.
8. Ridge characteristics, counting, and fingerprint comparison
9. Morphometric examination of skeleton remains
10. Sex determination, age and stature estimation from skeleton remains.
11. Examination of blood groups from fresh and dried blood stains
12. Preliminary and confirmatory tests for blood stains.

References

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- Rattan Lal & DhirajLal; The Indian Penal Code, 28th Ed. Wadhwa & Co. Nagpur, 2002.
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Eveleth, P.B. & Tanner, J.M; Worldwide Variation in Human Growth, Cambridge University Press, London, 1976.

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Pickering, R. & Bachman D; The use of Forensic Anthropology, CRC Press, Costa Rica, 2009.

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Cummins, H., & Midlo, C. (1961). Finger Prints, Palms and Soles. New York: Dover Publications.

Teaching Learning Process:

1. Class room teaching
2. Presentation and assignment
3. Practical classes
4. Workshops

Keywords: Forensic, Crime scene, Fingerprint, Anthropology, Serology and DNA Profiling

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.