Gyanmanjari Innovative University

Syllabus
Gyanmanjari Science college
Semester-1 (Forensic science)

Subject: Forensic Science and Criminology-BSC1FS11302

Type of course: Major (Core)

Prerequisite: Basic understanding of Crime and crime scene.

Rationale: After studying this paper, the students will get basic concept and characteristic of forensic science and crime.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks		Total Marks
CI	T	P	C	SEE	CCE	
2	0	4	4	100	100	200

Legends: CI-Class Room Instructions; T – Tutorial; P - Practical; C – Credit; SEE - Semester End Evaluation; MSE- Mid Semester Examination; LWA - Lab Work Assessment; V – Viva voce; CCE-Continuous and Comprehensive Evaluation; ALA- Active Learning Activities.

Course Content:

Sr. No	Course Content	Hrs.	% Weightage
1	**Introduction of forensic science and its branches** • Definition , scope of forensic science and duties of forensic scientist. • Historical perspective • Growth of forensic science laboratories, Existing facilities • Facilities offered by various divisions- Ballistics, biology, chemistry, document, lie-detector division, physics, serology, toxicology,Facilities offered by other expert institutions. **Practical –** • Exploring the historical aspects of criminal cases (Any 2) through the lens of forensic science • To study the set-up of different forensic science organizations	T:P 6:12	20%

in India
- To study and understand the working of the divisions and listing the evidences under them.

Evaluation Methods

Sr. No	Evaluation Methods	ESE	CCE
1	Report making- Famous cases will be given to students they have to documenteverything related to the case.	10	
2	MCQ	10	
3	Chart making to evolution of forensic science from historical times to digital forensic.		10
4	**ALA:** **Country Comparison:** Students have to compare the structure and functions of FSLs in different countries. They can present their findings using visuals such as charts or graphs to highlight similarities and differences and upload it on GMIU Web portal		10
	Total	20	20

2	**Crime scene Occurrence :**
	• Introduction to Crime scene
	• People and things, Fundamental principles of forensic science and Limitations
	• Preservation of the crime scene, Recording of crime scene
	• Methodical search for evidence, Value of trace evidence
	
	Practical:
	• Preservation of the crime scene
	• Recording of crime scene
	  o Recording of notes
	  o Sketching the crime scene
	  o Photography of the crime scene
	• Searching methods of crime scene
	• Learning about sketching of crime scene
		T:P 6:12	**20%**

Evaluation Methods

Sr. No	Evaluation Methods	ESE	CCE
1	Photography- 2.5%(Take various types of photographs of the scene like overall, midrange and close-up)		10
2	Crime scene sketching-10%(Sketching the crime scene provided to the students-"Rough and final")	10	
3	SOC-collection and packaging- 10%(collection and packaging of the evidence)	10	
4	**ALA:** **Scene of crime :** Each Student will be given a type of crime (suicidal, accidental, murder etc), they have to prepare a model of that scene of crime and present in the class and upload the photos on the GMIU portal.		10
	Total	20	20

3	**Physical Evidance** • Physical evidences- definition, sources, crime scene, victim, suspect. • Utility of physical evidence, Types of physical evidence • Location of physical evidence at the crime scene • Search and collection of Physical evidences • Control sample • Handling of PE, Packing and labelling of evidence, Sealing, forwarding, chain of custody. • Special instruction for specific type of exhibits. **Practical:** • Location of physical evidence at the crime scene • Packing and labelling of evidence ➢ Glass ➢ documents	**T:P 6:12**	**20%**

- Sealing, forwarding, chain of custody of physical evidences.

Evaluation Methods

Sr. No	Evaluation Methods	ESE	CCE
1	**Understand the types of physical evidences** –list thecollection and Packing of physical evidencefrom different crime scene(indoor, outdoor, mobile)		10
2	Sealing, forwarding, chain of custody of given physical evidences	10	
3	Viva voice	10	
4	Case Study: The Silent Witness Here's a case study designed for forensic students, covering various aspects of a crime scene investigation. It provides information in Report investigation unfolds, allowing students to consider their actions and conclusions at each step. Notify it in report with evidence.		10
	Total	20	20

4	**Judiciary forensic :** • Law relating to experts and scientific evidence: • Who is an expert? • Value of expert evidence • Special provisions on experts • Inherent powers of high court • Apex court and high court's ruling on expert opinion • Introduction to BNS (Bharatiya Nyaya Sanhita) • Introduction to BNSS (BharatiyaNagarik Suraksha Sanhita) • Introduction to BSA (BharatiyaSakshyaAdhiniyam) **Practical :** • Differentiating between cognizable and non cognizable offences according to the sections given in Cr.P.C • Explaining expert witness according to Indian evidence Act. • List out the sections related to: 1. Crime against women 2. Injury	**T:P 6:12**	**20%**

3. Homicide and murder
4. Robbery and theft
5. Property
6. Dowry

Evaluation Methods

Sr. No	Evaluation Methods	ESE	CCE
1	Mock trail- 5%(A mock trial will be executed by the students related to criminal and civil case)	10	
2	Viva voce	10	
3	Journal		10
4	Minor Project		10
	Total	20	20

5	**Finger print and its identification :** • Fingerprints: friction ridges, individuality, historical development, pattern classification, method of recording fingerprints, recording procedure, deceased person, scene of crime prints, searching for latent prints, development of latent prints, physical and chemical methods, other methods, electronographic method, prints on glass, recording developed fingerprints, Lifting powdered fingerptints, 10 digit classification, single digit system, battley single digit system, Automated fingerprint system, Ridge characteristics and counts, Identification of fingerprints, palm prints. • Footprints: Nature, location, preservation of footprints; collection, Khoji system of identification. **Practical :** • Recording procedure of Fingerprints • Development of latent prints through powder techniques. • Development of latent prints through Iodine method • Latent print development through chemical methods 1. Silver nitrate development 2. Ninhydrin development • To study and classify fingerprints based on 10 digit classification system. • Identification of fingerprints. • Casting of footprints.	**T:P 6:12**	**20%**

Evaluation Methods

Sr. No	Evaluation Methods	ESE	CCE		
1	Case study- 12.5 %(Mock crime scene and developing latent fingerprints from objects using various methods.)	10			
2	Debate	10			
3	Iist types of fingerprint development method on porous and non porous surface .		10		
4	**ALA:** **Imaginary Crime Scene:** Create an imaginary crime scene of house burglary and write at least 100 words for the same and upload it on GMIU portal		10		
	Total	20	20	**90**	**100%**

Distribution of Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage %	20%	20%	20%	20%	20%	00

Course Outcome:

After learning the course the students should be able to:	
CO1	Understand the fundamental concepts and scope of forensic science.
CO2	Evaluate the evidentiary value of trace and physical evidence in crime scene analysis.

CO3	Understand, classify, collection and packaging the different types of physical evidence encountered in forensic investigations.
CO4	Define the role and qualifications of an expert under Indian law.
CO5	Apply physical and chemical techniques to develop latent fingerprints on various surfaces.

Instructional Method:

The course delivery method will depend upon the requirement of content and needs of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory.

The internal evaluation will be done on the basis ofthe Active Learning Assignment.

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

Reference Books:

[1] B. S Nabar, forensic science in crime investigation, Asia law house.

[2] The Bharatiya Nyaya Sanhita, 2023 (No. 45 of 2023), Ministry of Law and Justice, Government of India.

[3]TheBharatiyaNagarik Suraksha Sanhita, 2023 (No. 46 of 2023), Ministry of Law and Justice, Government of India.

[4]TheBharatiyaSakshyaAdhiniyam, 2023 (No. 47 of 2023), Ministry of Law and Justice, Government of India.

[5] Richard Saferstein, Criminalistics- An Introduction to forensic science, Pearson.

[6]B.R.Sharma : Forensic science in criminal Investigation & Trails.

[7] S.H. James and J.J. Nordby, Forensic Science: An Introduction to Scientific and Investigative Techniques, 2nd Edition, CRC Press, Boca Raton

[8] B.B. Nanda and R.K. Tiwari, *Forensic Science in India: A Vision for the Twenty First Century*, Select Publishers, New Delhi.