



CHAUDHARY CHARAN SINGH UNIVERSITY
MEERUT, U.P

Syllabus for
B.Sc. (Hons.) Forensic Science

CHOICE BASE CREDIT SYSTEM (CBCS)

Framed According to the National Education Policy

(NEP2020)

4 YEAR COURSE

[Signatures]

To implement from the academic year 2026-27

[Signatures]

Chaudhary Charan Singh University, Meerut
B.Sc. Honors/ Honors with Research (Forensic Science)
A Four-Year Program with Multiple Exits and Entries
Semester-wise course structure and credits

1st YEAR							
SEMESTER I							
S. N.	Course Code	MJDSCC/MNGEC/AEC/SEC/VAC	Paper Title	L-T-P	Total Credits	Evaluation Scheme	
						Continuous Internal Evaluation (CIE)	Semester End Evaluation (SEE)
1.		MJDSCC I	Fundamentals of Forensic Science	2L-1T-0P	3	25	75
2.		MJDSCC II	Crime scene Management	3L-0T-0P	3	25	75
3.		MJDSCC III	General Chemistry	3L-0T-0P	3	25	75
4.		MJDSCC IV	Practical (Based on I, II, III)	0L-0T-3P	3	25	75
5.		MNGEC-I* (for students of other disciplines)	Concept of Criminology	3L-1T-0P	4	25	75
6.		AEC I**		3L-0T-0P	2	25	75
7.		SEC I	Forensic Dermatoglyphics	1L-0T-1P	2	40	60
8.		VAC I	Wildlife Forensics, Ethics, and Human Values	1L-1T-0P	2	25	75
Total Credits					22		
SEMESTER II							
9.		MJDSCC V	Crime and Criminal Laws	2L-1T-0P	3	25	75
10.		MJDSCC VI	General Biology	3L-0T-0P	3	25	75
11.		MJDSCC VII	General Physics	3L-0T-0P	3	25	75
12.		MJDSCC VIII	Practical (Based on V, VI, VII)	0L-0T-3P	3	25	75
13.		MNGEC-II* (for students of other disciplines)	Fundamentals of Computers and Information Technology	3L-1T-0P	4	25	75
14.		AEC II**		3L-0T-0P	2	25	75
15.		SEC II	Forensic Document	1L-0T-1P	2	40	60
16.		VAC II	From Swayam		2	25	75
VIAPCW-I of 4 credits in the summer break after semester II					4*	-	100
Total Credits After One Year					44+4*		
Exit-1: Undergraduate Certificate in Major Discipline after securing 44 credits in two semesters (one year) of a UG (Honors with Research) program with single major and 4 credits in a Vocational Course/ Internship/Apprenticeships/ Project/ Community Outreach/ Workshop (VIAPCW) offered during first year summer term.							

MNGEC- Students of B.Sc. Hons. (Forensic Science) will choose from the pool of courses of the other disciplines.

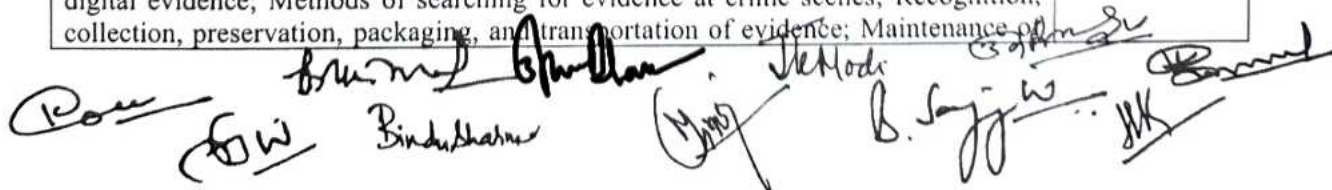
AEC- Any course from the pool for Personality Development with special emphasis on Language and Communication Skills

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SEMESTER I

Course	Fundamentals of Forensic Science
Course Code:	
Subject prerequisite	To study Forensic Science in undergraduate, a student must have studied Biology, Chemistry and Physics in class 12
Credits Allotted	3 credit (45 hours)
Teaching Scheme	3 hours/week
Examination Scheme	Internal Assessment: 25 Marks End of Semester: 75 Marks
Course Objectives	Trace the historical evolution and foundational principles of forensic science. Develop proficiency in crime scene management, including search and documentation. Master the protocols for evidence handling and maintaining the chain of custody. Understand the legal framework regarding expert testimony and evidence admissibility. Bridge theoretical science with practical, hands-on criminal investigation skills.
Course Outcomes	Explain the organizational structure of forensic labs and write professional reports. Implement effective investigation techniques tailored to different crime scene types. Execute crime scene reconstruction by analyzing the perpetrator's modus operandi. Apply searching techniques to locate physical evidence without compromising integrity. Evaluate the impact of documentation on the legal success of an investigation.

Course content	Lectures (45 Hours)
Unit I: Introduction to Forensic Science Definition and concepts of forensic science; History and development of forensic science in India and at the global level including INTERPOL and FBI; Role and significance of forensic science in the criminal justice system; Scope of Forensic Science; Relationship between science, law, and criminal investigation; Need and importance of forensic science in modern society for accurate and scientific investigation of crimes.	9
Unit II: Basic Principles and Concepts of Forensic Science Fundamental concepts and terminology used in forensic science; Basic principles governing forensic science: Principle of individuality; Locard's principle of exchange; Principle of comparison; Principle of probability; Principle of divisible matter; Principle of progressive change; Significance of these principles in forensic examination; Qualifications, conduct and duties of Forensic Scientists; Ethical considerations and responsibilities of forensic scientists in the examination and interpretation of evidence.	9
Unit III: Evidence Definition of evidence; Classification of evidence viz. direct and circumstantial evidence, individual and class evidence; Types of evidence viz. physical evidence, biological evidence, trace evidence, documentary evidence, and digital evidence; Methods of searching for evidence at crime scenes; Recognition, collection, preservation, packaging, and transportation of evidence; Maintenance of	9


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chain of custody and its legal importance; Evaluation and interpretation of evidence in forensic analysis; Role of forensic experts in presenting evidence before the court.	
Unit IV: Branches of Forensic Science & Organizational setup Overview and scope of major disciplines of forensic science: Forensic biology and serology; Forensic chemistry and toxicology; Forensic physics; Forensic anthropology; Forensic odontology; Forensic document examination; Digital and cyber forensics; Role of different forensic disciplines in crime detection and investigation; Organizational setups of Central Forensic Science Laboratories, State Forensic Science Laboratories, Fingerprint Bureau, National Crime Record Bureau, GEQD, BPR&D, NIA, etc.	9
Unit V: Crime & Society Introduction to Crime; Essentials of Crime (Actus reus and mens rea); Causes and consequences of crime; Crimes against Property and Person; Types of crime- traditional crimes, modern crimes, white collar crimes, Economic crimes, Political crime, Cyber-crime, Terrorism and Insurgency, Crime and Politics. Criminology: Definition, aim and scope; modus operandi, crime prevention Criminal Justice System: Broad components of criminal justice system; Structure of Criminal Justice System in India; Role of Legislature and Law making;	9
Suggested Readings 1. James, S. H. And Nordby, J. J. (Eds), Forensic Science - An Introduction to Scientific and Investigative Techniques, CRC Press, London, 2003. 2. James, S., and Eskerc, W., Interpretation of Blood Stain Evidence at Crime Scenes, (2ndEdn) CRC Press, Boca Raton, Florida, 1999. 3. Saferstein, Richard, Criminalistics, An Introduction to Forensic Science, 6th Ed. Prentice- Hall, New Jersey, 1998. 4. Sharma, B. R., Forensic Science in Criminal Investigation and Trials (3rdEdn) Universal Law Publishing Co. Ltd. New Delhi, 2001.	
Fundamentals of Forensic Science (Practical)	
1. To study the annual reports of National Crime Records Bureau and depict the data of different 2. To process a mock indoor crime scene 3. To perform the sketching of indoor crime scene 4. Collection, Packing, Labelling & Forwarding of the Following Physical evidences. 5. To process a mock outdoor crime scene. 6. To perform the sketching of outdoor crime scene 7. Preservation of dental evidences 8. To perform the photography of bite marks 9. To perform the photography of fingerprints 10. To perform the photography of questioned document.	

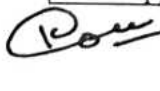
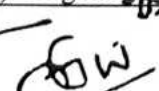
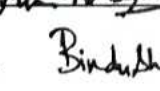


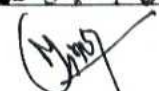
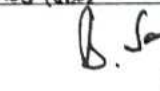
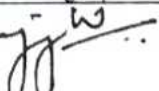





Course	Crime Scene Management
Course Code:	
Subject prerequisite	To study Forensic Science in undergraduate, a student must have studied Biology, Chemistry and Physics in class 12
Credits Allotted	3 credit (45 hours)
Teaching Scheme	3 hours/week
Examination Scheme	Internal Assessment: 25 Marks End of Semester: 75 Marks
Course Objectives	Establish a thorough understanding of the classification and scope of various crime scene types. Master the systematic search and documentation protocols required to preserve a scene's integrity. Develop technical skills in the collection and packaging of diverse evidence types (biological, trace, digital). Provide specialized training for investigating complex scenarios like mass disasters and arson. Integrate advanced technologies like 3D scanning and drones into traditional forensic workflows.
Course Outcomes	Identify and categorize physical evidence while assessing the specific needs of indoor vs. outdoor scenes. Execute standardized search methods (grid, spiral, zone) and maintain strict contamination control. Produce professional forensic documentation, including detailed sketches and multi-range photography. Implement a legally sound Chain of Custody to ensure evidence is admissible in a court of law. Utilize Advanced Tools like alternate light sources (ALS) and biosensors for high-precision evidence recovery.

Course content	Lectures (45 Hours)
UNIT 1: Fundamentals of Crime Scene Investigation: Definition, scope and objectives of crime scene investigation. Types of crime scenes (indoor, outdoor, primary, secondary, organized, unorganized, conveyance). Importance and classification of physical evidence. Types of physical evidence: biological, chemical, trace, impression (Pattern) and digital evidence.	9
UNIT II: Crime Scene Management and Documentation: Initial response to crime scene, role of first responding officer, duties of investigating officer, role of forensic scientists and other agencies. Crime scene safety and use of PPE. Securing the crime scene, entry and exit control, contamination prevention. Crime scene search methods: line, grid, spiral, zone and wheel methods. Crime scene documentation: note taking, sketching, photography, videography and preparation of crime scene report	9
UNIT III: Evidence Collection and Case Investigation: Recognition and identification of evidence. Methods of evidence collection. Packaging, labeling and preservation of evidence. Chain of custody and legal importance. Forwarding of exhibits to forensic laboratory.	9
UNIT IV: Investigation of different cases: homicide, sexual assault, burglary, arson, road traffic accidents, railway and aircraft disasters, and mass casualty incidents	9
UNIT V: Forensic Photography and Advanced Crime Scene Techniques: Principles and techniques of forensic photography. Types of photographs (overall, mid-range, close-up). Lighting and exposure techniques. Digital photography and image	9

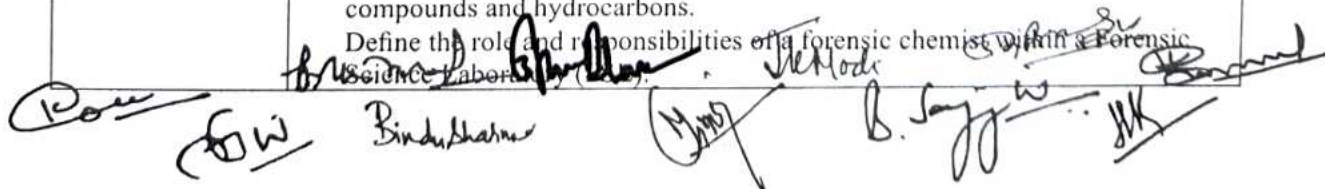






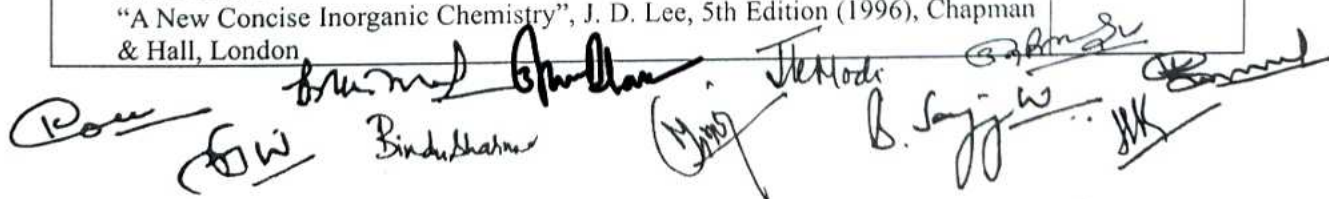
enhancement, Videography and high-speed videography. Advanced crime scene technologies: 3D laser scanning, drones in crime scene investigation, alternate light sources, biosensors, portable forensic instruments, computer-assisted crime scene reconstruction.	
Suggested Readings Crime Scene Management – A Forensic Approach y Dr. M. S. Rao and Dr. B. P. Maithil Sharma, B.R., Forensic Science in Criminal Investigation & Trials, Universal Publishing Co., New Delhi, 2003 Nanda B.B and Tewari, R.k. Forensic Science in India- A vision for the Twenty First Century, Select publisher, N. Delhi, 2001. James, SH and Nordby, J.J., Forensic Science- An Introduction to Scientific and investigative Techniques, CRC Press, USA (2003) Saferstein; Criminalistics- An Introduction of Forensic Science, Prentice Hall Inc, USA, 2007. Sharma, B.R. (1974) Forensic Science in Criminal Investigation and Trials, Central Law Agency, Allahabad, 1974. Forensic Science in Crime Investigation by B.S. Nabar Houck, M.M. & Siegel, JA; Fundamentals of Forensic Science, Academic Press, London, 2006	
Crime Scene Management (Practicals)	
1. Investigation and sketching of indoor and outdoor scene of crime using triangulation method and baseline method. 2. Collection, packing and forwarding of different types of evidences. 3. Analysis of different types of fibres. 4. Searching indoor scene of crime using spiral technique and listing evidence. 5. Searching outdoor scene of crime using grid search techniques. 6. Photographing scene of crime with at least five evidence. 7. Making contemporaneous notes while investigating a scene of crime. 8. Collection, preservation, sealing and forwarding of soil sample from crime scene. 9. Collection, preservation, sealing and forwarding of blood sample from crime scene. 10. Crime scene reconstruction of a simulated scene of murder/burglary	

Course	General Chemistry
Course Code:	
Subject prerequisite	To study Forensic Science in undergraduate, a student must have studied Biology, Chemistry and Physics in class 12
Credits Allotted	3 credit (45 hours)
Teaching Scheme	3 hours/week
Examination Scheme	Internal Assessment: 25 Marks End of Semester: 75 Marks
Course Objectives	Master the fundamental principles of matter, atomic structure, and chemical bonding. Develop technical proficiency in quantitative analysis, concentration terms, and statistical data treatment. Understand the structural and stereochemical properties of organic compounds and hydrocarbons. Define the role and responsibilities of a forensic chemist within a Forensic Science Laboratory.


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	Explore the practical application of analytical techniques in testing poisons, explosives, and petroleum products.
Course Outcomes	Apply stoichiometry and concentration rules (molarity, normality) to prepare precise chemical solutions. Differentiate between classical and instrumental methods while maintaining strict sample preservation protocols. Predict the reactivity and chirality of organic molecules using hybridization and Huckel's rule. Categorize various types of chemical evidence and understand their workflow within the chemistry division of an FSL. Evaluate the use of chromatography and spectroscopy in the identification of toxic substances and polymers.

Course content	Lectures (45 Hours)
Unit I: Basic Concepts Matter and its classification, elements, compounds and mixtures; Atomic structure: atomic number, mass number, isotopes, and electronic configuration; Chemical Bonding: ionic, covalent, and coordinate bonds; Periodic table and periodic properties of elements; Basic chemical reactions and stoichiometry; Types of solutions and concentration terms (molarity, normality, molality, ppm); Acids, bases, and pH concept; Buffers and their importance	9
Unit II: Analytical Concepts Principles of Qualitative and quantitative analysis; Introduction to instrumental and classical methods; Differences between classical and instrumental analytical methods. Applications of analytical methods in chemical examinations; Methods of sample collection, preservation, and preparation. Sources of contamination and precautions in handling chemical samples; Rules for significant figures, rounding off numerical values, and basic statistical treatment of analytical data.	9
Unit III: Organic Chemistry Organic compounds: Classification, nomenclature, hybridization, functional groups, shapes of bonds; Influence of hybridization; Basic concepts of hydrocarbons (alkanes, alkenes, alkynes); Introduction to alcohols, aldehydes, ketones, and acids; Optical Isomerism: Optical Activity, Specific Rotation, Chirality/Asymmetry, Enantiomers, Racemic mixture and resolution; aliphatic, aromatic hydrocarbons and Cycloalkanes; Aromaticity and Huckel rule - A general concept. Molecular orbital picture of benzene.	9
Unit IV: Introduction to Forensic Chemistry Definition, scope, and importance of forensic chemistry; Role of chemistry in forensic science and criminal investigations; Types of chemical evidence received at FSL; Functions of chemistry division in FSLs; Duties and responsibilities of forensic chemists in forensic laboratories	9
Unit V: Applications of Forensic Chemistry Introduction to analysis of poisons, drugs, and toxic substances; Chemical examination of explosives and petroleum products; Analysis of paints and polymers; Importance of analytical techniques (chromatography and spectroscopy) in forensic investigations	9
Suggested Readings Principles of Physical Chemistry and Puri, Sharma and Pathania, Vishal Publishing Company, 46th Edition 2013 Organic Chemistry by Moris and Boyed, Pearson Publishing, 7th edition 2011. Text book of organic chemistry by Arun Bahl and B. S. Bahl, S. Chand Publishing, 2016 "A New Concise Inorganic Chemistry", J. D. Lee, 5th Edition (1996), Chapman & Hall, London	


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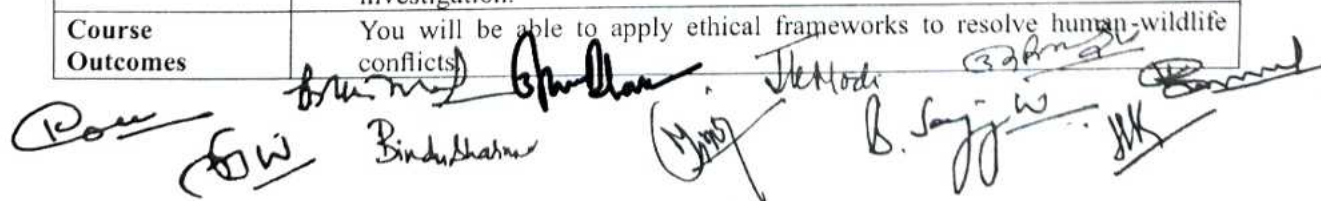
Course content	Lectures (60 Hours)
Unit : Introduction to Crime and Criminology Crime: Definition, characteristics, and elements of crime; the Crime Triangle. Criminology: Definitions, historical perspectives, nature, origin, and scope. Historical Schools: Pre-Classical, Classical, and Neo-Classical schools.	12
Unit 2: Theories of Criminology Biological & Psychological: Positivist and Biological theories. Sociological Theories: Social Learning Theory, Differential Association Theory, and Labelling Theory. Control & Opportunity: Containment Theory and Routine Activity Theory.	12
Unit 3: Causes and Typologies of Crime Causes of Crime: Social, Economic, Political, and Psychological factors. Social Problems: Juvenile Delinquency, Prostitution, Dowry, Drug Abuse, and Child Labour. Types of Criminals: Habitual, Professional, and White-Collar criminals.	12
Unit 4: Modern Crime Categories Conventional Crimes: Crimes against persons, violent crimes, sexual offences, and crimes against property. Contemporary Crimes: Cyber-crime, hate crimes, and public disorder. Emerging Trends: New and evolving forms of criminal activity.	12
Unit 5: Penology and Victimology Penology: Theories of punishment (Retributive, Deterrence, etc.); Prison systems and Correctional Administration (Probation, Parole, After-Care). Victimology: Concept of Victimization; Victim Precipitation and Proneness; Levels of Victimization (Primary, Secondary, Tertiary); Victimless Crimes.	12
Suggested Readings 1. Brown, S. E., Esbensen, F. A., Geis, G. (2015). Criminology: explaining crime and its context [8th Edition]. Elsevier Science; Routledge. 2. Clevenger, S., Higgins, G. E., Marcum, C. D., Navarro, J. N. (2020). Understanding Victimology : an Active-Learning Approach. Taylor and Francis. 3. Doerner, W. and Lab, S. (2012). Victimology. Amsterdam: Elsevier. 4. El-Dakkak, P. D. (2014). Criminology and penology. Abu Dhabi: The Judicial Department. 5. Gillin, J. L. Criminology and Penology- Volume 1. 6. Lab, S. P. (2016). Crime Prevention: Approaches, Practices, and Evaluations. Routledge. 7. Pamela Davies, P. F. (2007). Victims, crime and society. SAGE. 8. Paranjpe, N.V. (2016). Criminology and Penology. Central Law Publications, Allahabad. 9. Shahidullah, S. M. (2017). Crime, Criminal Justice, and the Evolving Science of Criminology in South 10. Asia: India, Pakistan, and Bangladesh. Palgrave Macmillan UK. 11. Thilagaraj, R. (2013). Criminal Justice System in India. In J. Liu, B. Heberton, S. Jou, Handbook of 12. Asian Criminology (pp. 199-211). New York: Springer-Verlag. 13. Turvey, B. E. (2014). Forensic Victimology: Examining Violent Crime Victims in Investigative and 14. Legal Contexts. Elsevier, Turvey and Furguson. 15. Williams, K. S. (2012). Textbook on criminology. Oxford University Press, USA	



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Cyanoacrylate (superglue) fuming. Alternate light sources and laser techniques for fingerprint detection. Photography and digital imaging of fingerprints.	
UNIT V: Advanced Techniques and Digital Fingerprint Analysis: Automated Fingerprint Identification Systems (AFIS) and Automated Biometric Identification Systems (ABIS). Digital enhancement and image processing techniques for fingerprints. Latent fingerprint enhancement using AI-based algorithms. Computer-assisted fingerprint comparison. 3D fingerprint imaging and scanning. Detection of altered fingerprints and anti-spoofing techniques. Presentation of fingerprint evidence and expert testimony in courts.	6
Suggested Readings Nanda, B. B., and Tewari, R. K., Forensic Science in India. Select Publishers, New Delhi, 2001. Saferstein, Richard, Criminalistics, An Introduction to Forensic Science, 6th Ed. Prentice-Hall, New Jersey, 1998. Sharma, B. R., Forensic Science in Criminal Investigation and Trials (3rdEdn) Universal Law Publishing Co. Ltd. New Delhi, 2001. Mehta, M.K; Identification of Thumb impression & cross examination of Fingerprints, N.M. Tripathi Pub. Bombay, 1980. Chatterjee, S.K; Speculation in Fingerprint Identification, Jantralekha printing Works, Kolkata, 1981. Cowger James F; Friction Ridge Skin- Comparison & Identification of Fingerprints, CRC Press, NY, 1993. Cossidy, M.J; Footwear Identification, Royal Canadian, Mounted Police, 1980.	
Forensic Dermatology (Practical)	
1. Recording of 10 digits fingerprints (Plain and rolled prints). 2. Identification of fingerprint pattern in latent and patent fingerprint. 3. Development of latent prints using fuming method. 4. Development of latent prints from various surfaces using powder method. 5. Lifting and preservation of fingerprints from various surfaces. 6. To perform ridge counting and ridge tracing. 7. To identify the minutiae in the fingerprint. 8. Comparison of fingerprints for matching. 9. Development of fingerprint using chemical method. 10. Fingerprint report writing.	

Course	Wildlife Forensics, Ethics, and Human Values
Course Code:	
Subject prerequisite	To study Forensic Science in undergraduate, a student must have studied Biology, Chemistry and Physics in class 12
Credits Allotted	2 credit (30 hours)
Teaching Scheme	3 hours/week
Examination Scheme	Internal Assessment: 25 Marks End of Semester: 75 Marks
Course Objectives	To learn the philosophical and ethical foundations of nature conservation. To become familiar with national and international laws protecting wildlife. To understand the scientific methods used to identify species and solve wildlife crimes. To learn the ethical protocols for collecting and preserving evidence. To evaluate past wildlife crimes to understand the challenges of investigation.
Course Outcomes	You will be able to apply ethical frameworks to resolve human-wildlife conflicts.



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	You will be able to explain the legal requirements for transporting and protecting wildlife under CITES and Indian law. You will be able to maintain a proper chain of custody for digital and physical evidence. You will be able to identify illegal wildlife products using morphological features. You will be able to create ethical guidelines and charters for conservation organizations.
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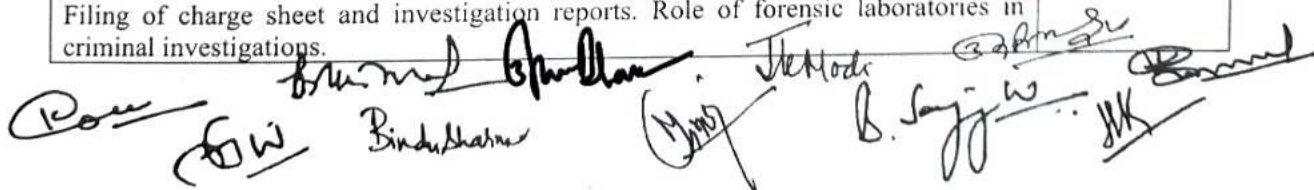
Course content	Lectures (30 Hours)
Unit 1: Environmental Ethics & Human Values Vasudhaiva Kutumbakam: The concept of "the world is one family" and biodiversity. Ethical Frameworks: Human-centered (Anthropocentrism) vs. Life-centered (Biocentrism) ethics. Moral Responsibility: Ethical duties toward endangered species and human-wildlife conflict.	6
Unit 2: Wildlife Laws & Crime Scenes Legal Basics: Highlights of the Wildlife (Protection) Act, 1972 and CITES. Crime Scene Ethics: The moral and legal duty to maintain the "Chain of Custody." The Forensic Role: How forensics helps stop the illegal trade of ivory, skins, and scales.	6
Unit 3: Investigative Techniques & Evidence Species Identification: Using hair, skin, and feathers to identify animals. Genetic Evidence: Basic concepts of DNA in wildlife cases. Modern Surveillance: Ethics of using drones and camera traps (Protection vs. Privacy).	6
Unit 4: Wildlife Crime Patterns Cause of Death: Investigating wildlife poisoning, snaring, and poaching. Illegal Trade Hubs: Understanding how illegal wildlife products move globally. Poaching Methods: Identifying the tools and traps used by criminals.	6
Unit 5: Case Studies & Practical Application Landmark Cases: Analysis of famous cases (e.g., Sansar Chand) to see what went right or wrong. Hands-on Identification: Visual identification of illegal wildlife products. Conservation Workshop: Drafting an "Ethics Charter" for local groups or zoos.	6
Suggested Readings Wildlife Forensics: Methods and Applications by Jane E. Huffman and John R. Wallace. Wildlife Forensic Investigation: Principles and Practice by John E. Cooper and Margaret E. Cooper. I Wildlife DNA Analysis: Applications in Forensic Science by Shanan Tobe. Environmental Ethics: A Very Short Introduction by Robin Attfield. Uncommon Ground: Rethinking the Human Place in Nature edited by William Cronon.	



SEMESTER II

Course	Crime And Criminal Laws
Course Code:	
Subject prerequisite	To study Forensic Science in undergraduate, a student must have studied Biology, Chemistry and Physics in class 12
Credits Allotted	3 credit (45 hours)
Teaching Scheme	3 hours/week
Examination Scheme	Internal Assessment: 25 Marks End of Semester: 75 Marks
Course Objectives	Define the legal and psychological nature of crime, including the elements of <i>actus reus</i> and <i>mens rea</i>. Analyze the new legislative framework (BNS, BNSS, BSA) and its specific provisions for forensic evidence. Master the procedural requirements for FIRs, search and seizure, and the rights of the accused. Understand the rules of admissibility for physical, documentary, and digital evidence in court. Develop the skills to prepare expert testimony and navigate the ethical challenges of forensic trials.
Course Outcomes	Explain the structure of the Indian Criminal Justice System and the role of forensic science within it. Categorize offences against person and property while identifying relevant forensic investigative needs. Execute lawful evidence collection and inquest proceedings compliance with BNSS protocols. Evaluate the admissibility of expert opinions and electronic records under the BSA framework. Defend forensic findings during cross-examination while maintaining high ethical and documentation standards.

Course content	Lectures (45 Hours)
UNIT I: Introduction to crime and criminal justice system: Definition, nature of crime, elements of crime (<i>actus reus</i> and <i>mens rea</i>), types of crime, social, psychological, economic causes of crime. Objective and importance of criminal laws, introduction to BNS, BNSS, BSA. Structure of the criminal justice system in india. Role of forensic science in criminal justice system.	9
UNIT II: Offences under BNS Relevant to Forensic Science: Offences against the human body (murder, culpable homicide, hurt, grievous hurt). Sexual offences and rape investigation provisions. Offences against property (theft, robbery, burglary, dacoity). Offences involving forgery and falsification of documents. Offences related to poisoning and toxic substances. Cyber offences and digital crimes. Organized crime and terrorism-related offences. Crimes involving explosives, firearms and weapons.	9
UNIT III: Criminal Investigation Procedure under BNSS: Registration of FIR and preliminary inquiry. Powers of police to investigate crimes. Search and seizure procedures. Arrest procedures and rights of accused. Recording of statements and confessions. Medical examination of accused and victim. Collection of forensic evidence during investigation. Inquest proceedings in cases of suspicious death. Filing of charge sheet and investigation reports. Role of forensic laboratories in criminal investigations.	9



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UNIT IV: Rules of Evidence under BSA: Meaning and classification of evidence. Documentary evidence and electronic evidence. Relevancy and admissibility of evidence. Expert opinion and forensic expert testimony. Presumptions and burden of proof. Examination of witnesses and cross-examination. Chain of custody and evidentiary integrity. Admissibility of digital and electronic records.	9
UNIT V: Forensic Evidence in Criminal Trials: Role of forensic experts as expert witnesses. Preparation of forensic reports and documentation. Presentation of scientific evidence in court. Examination and cross-examination of forensic experts. Medico-legal evidence and post-mortem reports. Case studies involving forensic evidence in criminal trials. Ethical issues in forensic investigations.	9
Suggested Readings Taxmann Editorial Board. (2026). Taxmann's Handbook on New Criminal Laws: BNS, BNSS & BSA. New Delhi: Taxmann Publications. Ratanlal, & Dhirajlal. (2023). The Bharatiya Nagarik Suraksha Sanhita, 2023. Gurugram: LexisNexis. Decoding New Criminal Laws Combo Reference: Toppers Notes Editorial Board. (2025). Decoding New Criminal Laws Combo: BNS, BNSS, BSA. Lawmann's Editorial Team. (2026). Criminal Manual: Criminal Major Acts (BNS, BNSS, BSA). Pillai, P. S. A. (2025). Criminal Law (16th ed.). Edited by K.I. Vibhute. Gurugram: LexisNexis.	
Crime And Criminal Laws (Practical)	
1. To prepare a schedule of five cognizable and five non-cognizable offences. 2. To study the powers and limitations of the Court of Judicial Magistrate of First Class. 3. To study a crime case in which an accused was punished on charge of murder under Section 302. 4. To study a crime case in which an accused was punished on charge of rape under Section 375. 5. To cite example of a case in which the opinion of an expert was called for under Section 45 of the Indian Evidence Act. 6. To cite a case wherein a person was detained under Article 22(5) of the Indian Constitution. Express your views whether the rights of the person as enlisted in this Article were taken care of. 7. To prepare a schedule of persons convicted under Narcotics, Drugs and Psychotropic Act statistically analyze the age group to which they belonged. 8. To study a case in which Drugs and Cosmetic Act was invoked. 9. To study a case in which Explosive Substances Act was invoked. 10. To study a case in which Arms Act was invoked. 11. In light of Section 304B of the Indian Penal Code, cite a case involving dowry death.	

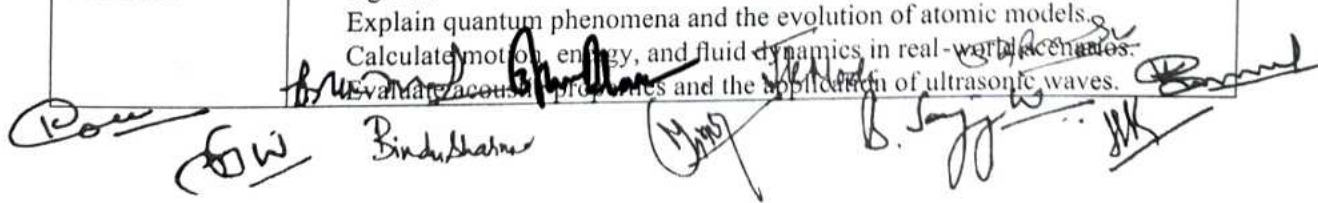


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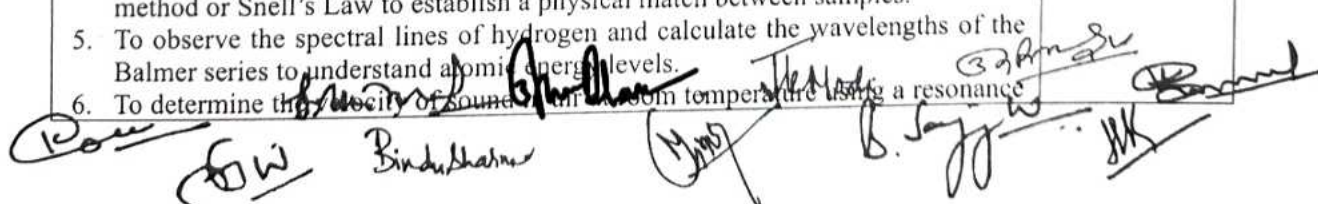
Unit V: Forensic Biology Definition, scope and historical development of Forensic Biology; Types of biological evidence found at crime scenes: blood, semen, saliva, hair, tissues, bones, and other body fluids; Importance of biological evidence in personal identification and crime reconstruction; Collection, preservation and packaging of biological evidence; Contamination and degradation of biological samples; Laboratory techniques used in forensic biological examination	9
Suggested Readings Dee Unglaub Silverthorn. (2012). Human Physiology: An Integrated Approach (6th ed.). Pearson. Verma, P.S., & Agarwal, V.K. (Latest Ed.). Cell Biology, Genetics, Molecular Biology, Evolution & Ecology. S. Chand Publishing. Cooper, G.M., & Hausman, R.E. (2013). The Cell: A Molecular Approach (6th ed.). Sinauer Associates. Cell Biology, Genetics, Molecular Biology, Evolution & Ecology: Evolution and Ecology, by Verma P.S. (Author), Agarwal V.K. (Author) L. Stryer, Biochemistry, 3rd Edition, W.H. Freeman and Company, New York (1988). R.K. Murray, D.K. Granner, P.A. Mayes and V.W. Rodwell, Harper's Biochemistry.	
General Biology (Practical)	
1. Study of different stages of Cell Division i.e., mitosis and meiosis 2. To study the structure of cheek cell. 3. Study of morphology of red blood cells. 4. Studying the morphology of different plant parts. 5. Studying the modifications of different plant parts. 6. Microscopic examination of a Plant cell. 7. Microscopic examination of an Animal cell. 8. Examination of plant pollen. 9. Mounting and microscopic examination of human hair 10. Extraction and Examination of Diatoms. 11. Examination of plant products (flower, seed, bark, leaves)	

Course	General Physics
Course Code:	
Subject prerequisite	To study Forensic Science in undergraduate, a student must have studied Biology, Chemistry and Physics in class 12
Credits Allotted	3 credit (45 hours)
Teaching Scheme	3 hours/week
Examination Scheme	Internal Assessment: 25 Marks End of Semester: 75 Marks
Course Objectives	Master mathematical tools like calculus and vectors for physics. Understand the dual nature of light and atomic structures. Apply classical mechanics and material properties to physical systems. Analyze wave behavior and sound phenomena in various media. Integrate physics principles into forensic evidence examination and analysis.
Course Outcomes	Solve complex problems using differentiation, integration, and vector algebra. Explain quantum phenomena and the evolution of atomic models. Calculate motion, energy, and fluid dynamics in real-world scenarios. Evaluate acoustic properties and the application of ultrasonic waves.

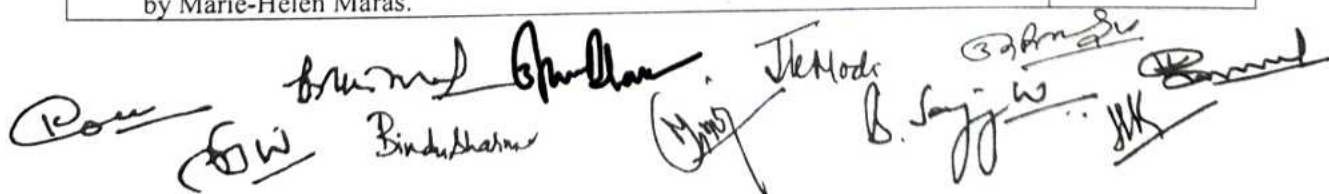

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Conduct scientific analysis of forensic evidence like glass, soil, and impressions.

Course content	Lectures (45 Hours)
Unit: I Basic Physics :Limits and continuity, differentiation, graph plotting of simple functions, partial derivatives, and basic differential equations including first-order equations, separation of variables, and linear equations. Scalars and vectors, vector addition and subtraction, scalar (dot) product, vector (cross) product, scalar triple product, and introductory concepts of gradient, divergence, and curl.	9
Unit II: Light's nature: Planck's quantum, Planck's constant and light as a collection of photons; Photoelectric effect and Compton scattering. De Broglie wavelength and matter waves; Davisson Germer experiment. Atomic Physics Rutherford model, Bohr atomic model, quantum numbers, Pauli's exclusion principle, hydrogen spectrum, - series (Lyman, Balmer, Paschen, Bracket and fund), vector atom model.	9
Unit III: Basic Mechanics and Properties of Matter Motion including displacement, velocity, and acceleration; types of motion such as linear, circular, and projectile; Newton's Laws of Motion; work, energy, and power; conservation of energy; elasticity and Hooke's Law; pressure and Pascal's Law; viscosity and Stokes' Law.	9
Unit IV: Basics of Waves and Sound Simple harmonic motion, types of waves (transverse and longitudinal), wavelength, frequency and wave speed, sound waves, sound intensity and loudness, Doppler Effect, and ultrasonic waves.	9
Unit V: Introduction to Forensic Physics Definition and scope of forensic physics, physical evidence and its types, measurement, units and errors, properties of matter such as density and refractive index, basic analytical techniques, examination of glass, soil, and paint, impression evidence including footprints and tire marks, tool marks, and collection and preservation of evidence.	9
Suggested Readings Amato, Joseph (December 1996). "The introductory calculus-based physics Textbook". Physics Today 49 (12): 46–51. Thomas Brody (1993.) "The Philosophy Behind Physics" pp 18–24 (Chapter 2) Reference Book. College Physics for AP Courses: https://openstax.org/details/books/college-physics-ap-courses-2e/ . Neustein, A., & Patil, H. A. (2012). Forensic speaker recognition (Vol. 1). New York, United States: Springer. Maher, R. C. (2018). Principles of forensic audio analysis (Vol. 34). Springer International	
General Physics (Practical)	
1. To verify the law of parallelogram of forces using a force table and determine the resultant of two or more concurrent vectors. 2. To determine the elastic constant (force constant) of a spring and study the relationship between applied force and deformation in materials. 3. To determine the coefficient of viscosity of a given viscous liquid (like engine oil) by measuring the terminal velocity of a falling sphere. 4. To determine the refractive index of glass fragments using the Becke Line method or Snell's Law to establish a physical match between samples. 5. To observe the spectral lines of hydrogen and calculate the wavelengths of the Balmer series to understand atomic energy levels. 6. To determine the velocity of sound in air at room temperature using a resonance	

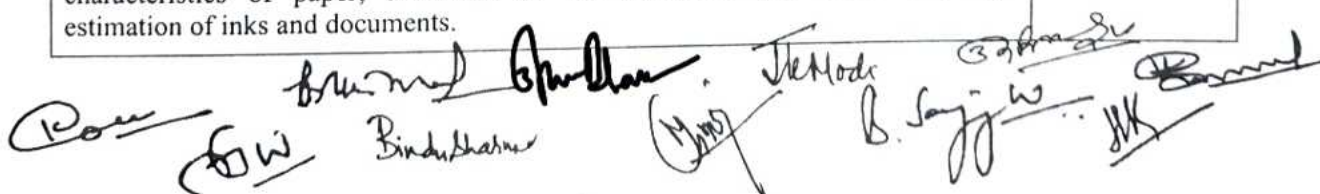

 Bindu Sharma, B. Sanyal, etc.

Course content	Lectures (30 Hours)
Unit 1: Fundamentals of Computers and Information Technology Introduction to computers and their applications. Classification and generations of computers. Basic components of computer hardware and peripherals. Input, output and storage devices. Development and working of hard disk drives, physical construction of hard disk, CHS and LBA addressing. Memory and processor – RAM, ROM, CPU and its functions. Methods of storing data. Introduction to operating systems and their functions. Types of software – system software and application software. Basics of internet and networking. LAN, MAN and WAN. Network devices such as modem, router and switch.	12
Unit 2: Cyber Crimes and Cyber Security Definition and characteristics of cyber crime. Difference between conventional crimes and cyber crimes. Reasons for commission of cyber crimes. Concepts of cyber security and information security. Security breaches in digital systems. Malware and malicious software – computer virus, worms, Trojan horse, spyware, trap doors and logic bombs. Introduction to safe internet practices and password security. Basics of antivirus software and firewalls.	12
Unit 3: Types of Cyber Crimes Hacking and unauthorized access. Phishing, spoofing and spamming. Cyber stalking and cyber bullying. Cyber pornography and online frauds. Crimes related to intellectual property rights and software piracy. E-mail crimes and internet abuse. Cyber terrorism and threats to national security. Overview of cyber laws related to cyber offences.	12
Unit 4: Computer Forensics and Investigation Procedures Introduction and importance of computer forensics. Types of digital evidence. Procedures for seizure of suspected computers and digital devices. Preparation required before seizure. Protocols to be followed at the crime scene. Documentation and chain of custody. Handling and preservation of digital evidence. Collection and seizure of magnetic media. Creation of forensic images and bitstream copies of original media. Legal and privacy issues in digital investigations.	12
Unit 5: Digital Evidence Analysis Extraction of information from storage media. Recovery and restoration of deleted files. Basics of password cracking. E-mail tracking and internet activity analysis. Encryption and decryption methods. Tracking users through logs and digital records. Introduction to mobile and cloud forensics. Basic cyber forensic tools and utilities. Future scope of cyber forensics.	12
Suggested Readings <i>Fundamentals of Computers</i> by V. Rajaraman. Core Forensic Text: <i>Guide to Computer Forensics and Investigations</i> by Bill Nelson, Amelia Phillips, and Christopher Steuart (Cengage Learning). This is the "Bible" for seizure protocols and digital evidence analysis. <i>Cybercrime & Security: Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives</i> by Nina Godbole and Sunit Belapure (Wiley). <i>Hacking & Malware: Hacking: The Art of Exploitation</i> by Jon Erickson. Useful for understanding security breaches and malware. <i>Indian Legal Context: Cyber Forensics: Cybercriminals, Laws, and Evidence</i> by Marie-Helen Maras.	


 A collection of handwritten signatures in black ink, likely belonging to the faculty members who reviewed or approved the course content. The signatures are written in a cursive style and are located below the suggested readings section of the table.

Course	Forensic Document
Course Code:	
Subject prerequisite	To study Forensic Science in undergraduate, a student must have studied Biology, Chemistry and Physics in class 12
Credits Allotted	2 credit (30 hours)
Teaching Scheme	3 hours/week
Examination Scheme	Internal Assessment: 25 Marks End of Semester: 75 Marks
Course Objectives	Establish the legal and scientific importance of document examination in forensics. Master the principles of handwriting individuality to detect forgery and disguise. Analyze the chemical and physical properties of inks and paper components. Develop skills to detect alterations, erasures, and indented writing using technology. Learn to use advanced imaging tools like VSC for expert court testimony.
Course Outcomes	Identify various document frauds including counterfeiting and fabrication. Compare questioned handwriting against standards using class and individual traits. Differentiate between ink types and paper quality to determine document origin. Restore and decipher charred, damaged, or secret writing for investigations. Prepare comprehensive expert reports and present evidence in a court of law.

Course content	Lectures (30 Hours)
Unit I: Introduction Historical development and importance of questioned document examination in forensic science; Role of document examiners in criminal investigations and legal proceedings; Types of questioned documents encountered in forensic cases (letters, cheques, wills, contracts, passports, currency notes, etc.); Types of document frauds: forgery, counterfeiting, alteration, obliteration, erasures, and fabrication; Basic principles and scientific basis of handwriting and document examinations; Significance of questioned documents in the criminal justice system.	6
Unit II: Handwriting Examination Concept and individuality of handwriting; Class characteristics and individual characteristics of handwriting; Natural variations and fundamental principles of handwriting identification; Examination of handwriting characteristics (Line quality, Size and proportion of letters, Spacing and alignment, Slant and curvature, Pen pressure and rhythm, Connecting strokes and letter formations); Disguise; Forged signatures and simulated signatures; Comparison of questioned writing with standard specimens.	6
Unit III: Ink & Paper Analysis Introduction to ink and paper as important components of documents; Types and composition of writing inks, printing inks, and stamp inks; Methods used in examination of inks and paper in forensic laboratories; Physical and chemical characteristics of paper; Detection of ink alterations and differences; Age estimation of inks and documents.	6


 A collection of handwritten signatures in black ink, likely representing the faculty members responsible for the course. The signatures are written in a cursive style and are located below the course content table.

Unit IV: Document Alterations Types of document alterations: erasures, overwriting, additions, obliterations, and substitutions; Methods for detecting alterations and erasures; Detection of indented writing; Examination of charred and damaged documents; Detection of secret writing and invisible inks; Examination of typed, printed, and photocopied documents; Identification of typewriters, printers, and photocopy machines.	6
Unit V: Tools & Techniques Basic tools and instruments used in questioned document examination; Use of magnifiers, microscopes, and measuring instruments; Application of photography and imaging techniques in document analysis; Introduction to Ultraviolet Radiation and Infrared Radiation in document examination; Use of Video Spectral Comparator in forensic document analysis; Preparation of expert reports and presentation of evidence in courts; Role of expert testimony in questioned document cases.	6
Suggested Readings Huber, A. R. Headrick, A. M. (1999). The Discrimination and Identification of writing. Handwriting Identification Facts and Fundamentals, CRC Press, Boca Raton London. James, S. H. And Nordby, J. J. (Eds), Forensic Science; An Introduction to Scientific and Investigative Techniques, CRC Press, London, 2003. Saferstein, Richard, Criminalistics - An Introduction to Forensic Science, 6th Ed. Prentice-Hall, New Jersey, 1998.	
Forensic Document (Practical)	
1. Collection and preservation of questioned document 2. To inspect natural variations in handwriting 3. To inspect various handwriting characteristics 4. To compare handwriting samples 5. To examine the ink in a questioned document 6. To detect simulated forgery in a questioned document 7. To detect traced forgery in a questioned document 8. To examine the security features of currency notes, passports and plastic money 9. To inspect alterations, obliterations and erasures in handwriting samples 10. Cite a case of questioned document examination	

Bindu Kumar B. Sajjan Anil Kumar 37 Anand Anand
Ravi Anand J. K. Modi J. K. Modi J. K. Modi