

**KURUKSHETRA UNIVERSITY
KURUKSHETRA**

**Scheme of Examination and Syllabus for
M.Sc. (5-Year Integrated) Forensic Science**

**Under Multiple Entry-Exit, Internship and
CBCS-LOCF in accordance to NEP-2020
w.e.f. 2023-24 (in phased manner)**

DEPARTMENT OF ZOOLOGY, KURUKSHETRA UNIVERSITY, KURUKSHETRA
Scheme of Examination for M.Sc. (5-Year Integrated) Forensic Science
Under Multiple Entry-Exit, Internship and CBCS-LOCF in accordance to NEP-2020
w.e.f. 2023-24 (in phased manner)

| SEMESTER-1 | | | | | | | | |
|---|-------------|--|--------|---------------------|---------------------------|----------------|------------|---------------|
| Course Type | Course Code | Name of the Course | Credit | Contact Hours/ Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
| CC-1 MCC-1 4 credit (Scheme A&C) | B23-FSC-101 | Basics of Forensic Science | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| MCC-2 4 credit (Scheme C) | B23-FSC-102 | Criminology | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| CC-MI 2 credit (Scheme A) | B23-FSC-103 | Introduction to Forensic Science | 1 | 1 | 10 | 20 | 30 | 3 hrs. |
| | | | 1 | 2 | 5 | 15 | 20 | 4 hrs. |
| MDC-1 3 credit (Scheme A&C) | B23-FSC-104 | Basic Forensic-I | 2 | 2 | 15 | 35 | 50 | 3 hrs. |
| | | Practical | 1 | 2 | 5 | 20 | 25 | 4 hrs. |
| SEMESTER-2 | | | | | | | | |
| Course Type | Course Code | Name of the Course | Credit | Contact Hours/ Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
| CC-2 MCC-3 4 credit (Scheme A&C) | B23-FSC-201 | Forensic & Law | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| DSEC-1 4 credit (Scheme C) | B23-FSC-202 | Crime Scene Management | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| CC-M2 2 credit (Scheme A) | B23-FSC-203 | Crime Scene & Evidences | 1 | 1 | 10 | 20 | 30 | 3 hrs. |
| | | | 1 | 2 | 5 | 15 | 20 | 4 hrs. |
| MDC-2 3 credit (Scheme A&C) | B23-FSC-204 | Basic Forensic-II | 2 | 2 | 15 | 35 | 50 | 3 hrs. |
| | | Practical | 1 | 2 | 5 | 20 | 25 | 4 hrs. |
| SEMESTER-3 | | | | | | | | |
| Course Type | Course Code | Name of the Course | Credit | Contact Hours/ Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
| CC-3 MCC-4 4 credit (Scheme A,B&C) | B23-FSC-301 | Questioned Documents and Report Writing | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| MCC-5 4 credit (Scheme B&C) | B23-FSC-302 | Analytical Techniques used in Forensic Science-I | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| MDC-3 3 credit (Scheme A,B&C) | B23-FSC-303 | Basic Forensic-III | 2 | 2 | 15 | 35 | 50 | 3 hrs. |
| | | Practical | 1 | 2 | 5 | 20 | 25 | 4 hrs. |
| SEMESTER-4 | | | | | | | | |
| Course Type | Course Code | Name of the Course | Credit | Contact Hours/ Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
| CC-4 MCC-6 4 credit (Scheme A,B&C) | B23-FSC-401 | Forensic Medicine | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |

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|--|--------------------|---|---------------|----------------------------|----------------------------------|-----------------------|-------------------|----------------------|
| MCC-7 4 credit (Scheme B&C) | B23-FSC-402 | Forensic Chemistry and Toxicology | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| MCC-8 4 credit (Scheme B&C) | B23-FSC-403 | Forensic Psychology | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| DSE-1 4 credit Select one option (Scheme B&C) | B23-FSC-404 | Basics of Forensic Anthropology | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| | B23-FSC-405 | Digital Forensics | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| SEMESTER-5 | | | | | | | | |
| Course Type | Course Code | Name of the Course | Credit | Contact Hours/ Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
| CC-5 MCC-9 4 credit (Scheme A,B&C) | B23-FSC-501 | Fingerprints and Impressions | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| MCC-10 4 credit (Scheme B&C) | B23-FSC-502 | Analytical Techniques used in Forensic Science-II | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| DSE-2 4 credit Select one Option (Scheme B&C) | B23-FSC-503 | Forensic Biology and Wildlife Forensics | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| | B23-FSC-504 | Basics of Forensic Ballistics | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| DSE-3 4 credit Select one Option (Scheme B&C) | B23-FSC-505 | Basics of Immunology and Serology | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| | B23-FSC-506 | Advance Digital Forensics | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| SEMESTER-6 | | | | | | | | |
| Course Type | Course Code | Name of the Course | Credit | Contact Hours/ Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
| CC-6 MCC-11 4 credit (Scheme A, B&C) | B23-FSC-601 | Computer Forensics and Biometrics | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| MCC-12 4 credit (Scheme B&C) | B23-FSC-602 | Serology and DNA Forensics | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| DSE-4 4 credit Select one Option (Scheme B&C) | B23-FSC-603 | Victimology | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| | B23-FSC-604 | Forensic Photography | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| DSE-5 4 credit Select one Option (Scheme B&C) | B23-FSC-605 | Forensic Pharmacology | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |
| | B23-FSC-606 | Quality Management System | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |

| SEMESTER-7 (FOR HONOURS/HONOURS WITH RESEARCH IN FORENSIC SCIENCE) | | | | | | | | |
|---|--------------------|---------------------------------|---------------|---------------------------|----------------------------------|-----------------------|-------------------|----------------------|
| Course Type | Course Code | Name of the Course | Credit | Contact Hours/Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
| CC-H1 4 credit | B23-FSC-701 | General Forensic Science | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| CC-H2 4 credit | B23-FSC-702 | Instrumental Analysis-I | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| CC-H3 4 credit | B23-FSC-703 | Biological Forensic Evidences | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| DSE-H1 4 credit Select one Option | B23-FSC-704 | Advances in Forensic Biology | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| | B23-FSC-705 | Advances in Forensic Chemistry | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| PC-H1 4 credit | B23-FSC-706 | Practical | 4 | 8 | 30 | 70 | 100 | 6 hrs. |
| SEMESTER-8 (FOR HONOURS IN FORENSIC SCIENCE) | | | | | | | | |
| Course Type | Course Code | Name of the Course | Credit | Contact Hours/Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
| CC-H4 4 credit | B23-FSC-801 | Forensic Toxicology | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| CC-H5 4 credit | B23-FSC-802 | Questioned Document Examination | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| CC-H6 4 credit | B23-FSC-803 | Instrumental Analysis-II | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| DSE-H2 4 credit Select one option | B23-FSC-804 | DNA Profiling | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| | B23-FSC-805 | Cyber Crime and Cyber Law | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| PC-H2 4 credit | B23-FSC-806 | Practical | 4 | 8 | 30 | 70 | 100 | 6 hrs. |
| OR SEMESTER-8 (FOR HONOURS WITH RESEARCH IN FORENSIC SCIENCE) | | | | | | | | |
| Course Type | Course Code | Name of the Course | Credit | Contact Hours/Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
| CC-H4 4 credit | B23-FSC-801 | Forensic Toxicology | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| CC-H5 4 credit | B23-FSC-802 | Questioned Document Examination | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| Project/ Dissertation 12 credit | B23-FSC-807 | Project/Dissertation | 8+4 | - | - | - | 300 | - |

| SEMESTER-9 | | | | | | | | |
|--|--------------|--|--------|--------------------|---------------------------|----------------|------------|---------------|
| Course Type | Course Code | Name of the Course | Credit | Contact Hours/Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
| CC-PG1 4 credit | B23-FSC-901 | Forensic Ballistics and Explosives | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| CC-PG2 4 credit | B23-FSC-902 | Computer Forensics and Recent Advances | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| CC-PG3 4 credit | B23-FSC-903 | Forensic Medicine and Drug Analysis | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| DSE-PG1 4 credit Select one Option | B23-FSC-904 | Forensic Anthropology and Biometrics | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| | B23-FSC-905 | Forensic Genetics and Serology | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| PC-PG1 4 credit | B23-FSC-906 | Practical | 4 | 8 | 30 | 70 | 100 | 6 hrs. |
| SEMESTER-10 (FOR THE STUDENTS WHO HAVE DONE HONOURS IN FORENSIC SCIENCE DURING 8 TH SEMESTER) | | | | | | | | |
| Course Type | Course Code | Name of the Course | Credit | Contact Hours/Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
| CC-PG4 4 credit | B23-FSC-1001 | Forensic Physics | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| CC-PG5 4 credit | B23-FSC-1002 | Forensic Dactylography and other Impressions | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| Project/Dissertation 12 credit | B23-FSC-1003 | Project/Dissertation | 8+4 | - | - | - | 300 | - |
| SEMESTER-10 (FOR THE STUDENTS WHO HAVE DONE HONOURS WITH RESEARCH IN FORENSIC SCIENCE DURING 8 TH SEMESTER) | | | | | | | | |
| CC-PG4 4 credit | B23-FSC-1001 | Forensic Physics | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| CC-PG5 4 credit | B23-FSC-1002 | Forensic Dactylography and other Impressions | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| CC-PG6 | B23-FSC-1004 | Instrumental Analysis-II | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| DSE-PG2 4 credit Select one Option | B23-FSC-1005 | DNA Profiling | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| | B23-FSC-1006 | Cyber Crime and Cyber Law | 4 | 4 | 30 | 70 | 100 | 3 hrs. |
| PC-PG1 4 credit | B23-FSC-1007 | Practical | 4 | 8 | 30 | 70 | 100 | 4 hrs. |

M.SC. (5-YEAR INTEGRATED) FORENSIC SCIENCE: SEMESTER-I

| Course Type | Course Code | Name of the Course | Credit | Contact Hours/Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
|---|-------------|----------------------------|--------|--------------------|---------------------------|----------------|------------|---------------|
| CC-1 MCC-1 4 credit (Scheme A&C) | B23-FSC-101 | Basics of Forensic Science | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |

Level of the course: 100-199

Pre-requisite for the course (if any): Any Science Subject at 4.0 Level (Class XII)

Course Learning Outcomes (CLOs): At the end of the course the student should be able to:

1. Learn the basic concepts of forensic science.
2. To Study the history of forensic science.
3. To understand the organization of the forensic laboratory.
4. To acquire knowledge on agencies involved in crime detection and investigation.
5. Understand crime cases and their components.

Instructions for Paper-Setter

1. Nine questions will be set in all. All questions will carry equal marks.
2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 and four more questions selecting one question from each unit.

| UNIT | TOPICS | CONTACT HOURS |
|------------|---|---------------|
| I | Concepts in Forensic Science Definition of forensic science; scope and need of forensic science; Functions of Forensic Science; Evidence; classification of evidence: according to Indian Evidence Act, based on nature of evidence, class and individual evidence; Principles of forensic science; Frye Rule; Daubert Standards; Terminologies in forensic science: First responder, chain of custody, Mahazar, Code of conduct for forensic scientists; Qualifications of forensic scientists; Duties of forensic scientists; Data depiction; Report writing. Ethics in Forensic Science. | 12 |
| II | History of Forensic Science Pioneers in Forensic Sciences: History and development of branches of forensic science: forensic biology, forensic chemistry and toxicology, forensic anthropology, fingerprints, questioned document examination, forensic ballistics, digital and cyber forensics, forensic audio analysis, forensic psychology; Contribution of Sir Edgar Hoover through the FBI. | 11 |
| III | Organization of Forensic Science Laboratory Forensic Science Laboratories in India: history, development and hierarchical set up; Directorate of Forensic Science Services, Central, State and Regional Forensic Science Laboratories; Mobile Crime Laboratories; Branches of Forensic Science Laboratories (definition and functions): Forensic Biology, DNA, Forensic Chemistry, Forensic Toxicology, Narcotics Unit, Forensic Physics, Forensic Ballistics, Forensic Psychology, Questioned Documents, Computer Forensics, Forensic Audio Analysis. | 11 |
| IV | Agencies involved in crime detection and investigation Functions and hierarchical setup of Law enforcement agencies: civil police, reserve police; Government Examiners of Questioned Documents; Fingerprint Bureaus; National Crime Records Bureau; Police & Detective Training Schools; Bureau of Police Research & Development; National and State Police Academies: Police Training Schools/Colleges, Dog Squad, Bomb Detection and Defusal Squad; RAW, CBI, INTERPOL, NIA and FBI. | 11 |
| V | Practical | 30 |

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| Practical | <ol style="list-style-type: none"> 1. Identifying and classifying evidence from a given case study. 2. Using the principle of probability in a case study with respect to one evidence 3. Identifying evidence and relating the branch of forensic science that it should be sent to from a case study. 4. Writing a forensic report on a criminal case from a case study. 5. Using a case study identify the agencies that need to be involved in the process of investigation with proper justification. 6. Examine the latest report of NCRB and study the data pertaining to murder cases in India using digital pie charts and graphs for depiction. 7. Collection, preservation, handling, and physical evidence method of different Crimes. 8. Understanding the hierarchical setup of different forensic science establishments and suggesting improvements. | |
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Suggested Evaluation Methods

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| <p>Internal Assessment:</p> <ul style="list-style-type: none"> > Theory <ul style="list-style-type: none"> • Class Participation: 5 • Seminar/presentation/assignment/quiz/class test etc.: 5 • Mid-Term Exam: 10 > Practicum <ul style="list-style-type: none"> • Class Participation: NA • Seminar/Demonstration/Viva-voce/Lab records etc.: 10 • Mid-Term Exam: NA | <p>End Term Examination:</p> <ul style="list-style-type: none"> > Theory <ul style="list-style-type: none"> • Written Examination: 50 > Practicum <ul style="list-style-type: none"> Practical Examination: 20 |
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Learning Resources

1. Brenner, J. C. (2004). Forensic Science: an Illustrated Dictionary. CRC Press. Eckert, W. G. (1997).
2. Introduction to Forensic Sciences (2nd Edition). CRC Press. James, S. H., Nordby, J. J., Bell, S. (2014).
3. Forensic Science: An Introduction to Scientific and Investigative Techniques (4th Edition). CRC Press.
4. Nabar, B. (2017). Forensic Science in Crime Investigation. Asia Law House. S Nath, R. C. (2013).
5. Forensic Science and Crime Investigation: Abhijeet Publications. Saferstein, R. (2017).
6. Criminalistics: An Introduction to Forensic Science. Pearson. Sharma, B. R. (2019).
7. Forensic Science in Criminal Investigation & Trails. Universal Law Publishing Company. Yount, L. (2006).
8. Forensic Science: From Fibers to Fingerprints (Milestones in Discovery and Invention). Chelsea House publications.

M.SC. (5-YEAR INTEGRATED) FORENSIC SCIENCE: SEMESTER-I

| Course Type | Course Code | Name of the Course | Credit | Contact Hours/Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
|---------------------------------|-------------|--------------------|--------|--------------------|---------------------------|----------------|------------|---------------|
| MCC-2 4 credit (Scheme C) | B23-FSC-102 | Criminology | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |

Level of the course: 100-199

Pre-requisite for the course (if any): Any Science Subject at 4.0 Level (Class XII)

Course Learning Outcomes (CLOs): At the end of the course the student should be able to:

1. The basic concepts of criminology.
2. The causes and types of crime and criminals.
3. Historical Development of Victimology.
4. Crime victim-Victim genesis.
5. Understand the practical aspects of Criminal Procedure related to forensic science.

Instructions for Paper-Setter

1. Nine questions will be set in all. All questions will carry equal marks.
2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 and four more questions selecting one question from each unit.

| UNIT | TOPICS | CONTACT HOURS |
|------------------------|---|---------------|
| I | Concepts of Criminology Crime: definition, characteristics of crime, elements of crime, and crime triangle; Criminology – definitions, historical perspectives, nature, origin, and scope. Theories of Criminology: Pre-Classical, Classical, Neo-Classical, Positivist, Biological, Social Learning Theory, Differential Association theory, Labelling Theory, Containment theory, and Routine Activity Theory | 12 |
| II | Causes and Types of Crime and Criminals Causes of crime: Social, Economic, Political, and Psychological; Social Problems and crime: Juvenile Delinquency, Prostitution, Dowry, drug abuse, and child labour. Types of Crime: Crimes against persons, violent crimes, sexual offences, crimes against property, cyber-crime, hate crimes and public disorder, emerging crimes. Types of Criminals: Habitual, Professional, and White-Collar Criminals. | 11 |
| III | Penology Historical Development of Penology and definitions of punishment, Concepts of correctional administration and types of punishments, Theories of punishment: Retributive, Prevention, Deterrence, and Reformative. Prisons: Historical development of Indian Prisons, Correctional Administration: Classification of Prisons and Prisoners, Non-Institutional Programmes- Probation, Parole, and After-Care. Unusual Problems in Correctional Institutions. | 11 |
| IV | Victimology Introduction to Victimology: Meaning of Victimology, Historical Development of Victimology; Victim and Victimization: Concept, Nature and Related Issues. Key Concepts in Victimology: Victim - Crime Victim - Victim Genesis -Victim Precipitation- General Victim-Victimization Proneness, Victim Responsiveness. Victim Psychology, Psychodynamics of Victimization- Primary Victimization, Secondary Victimization, Tertiary Victimization, Victim Vulnerability and Victimless Crimes. | 11 |
| V Practical | Practical 1. To review past criminal cases and elucidate which theory best explains the criminal behavior of the accused. | 30 |

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| | <ol style="list-style-type: none"> 2. To cite examples of criminal cases in which the media acted as a pressure group. 3. To review crime cases where criminal profiling assisted the police to apprehend the accused. 4. To evaluate the post-trauma stress amongst victims of racial discrimination. 5. To correlate the deviant behavior of the accused with criminality (take a specific example). 6. To evaluate victimology in a heinous crime. 7. To evaluate how rising standards of living affect the crime rate. 8. To review the recommendations on the modernization of police stations and evaluate how far these have been carried out in different police stations. 9. To visit a “Model Police Station” and examine the amenities vis-à-vis conventional police stations. 10. To prepare a report on interrogation cells and suggest improvements. | |
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Suggested Evaluation Methods

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| <p>Internal Assessment:</p> <ul style="list-style-type: none"> > Theory <ul style="list-style-type: none"> • Class Participation: 5 • Seminar/presentation/assignment/quiz/class test etc.: 5 • Mid-Term Exam: 10 > Practicum <ul style="list-style-type: none"> • Class Participation: NA • Seminar/Demonstration/Viva-voce/Lab records etc.: 10 • Mid-Term Exam: NA | <p>End Term Examination:</p> <ul style="list-style-type: none"> > Theory <ul style="list-style-type: none"> • Written Examination: 50 > Practicum <ul style="list-style-type: none"> • Practical Examination: 20 |
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Learning Resources

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|---|
| <ol style="list-style-type: none"> 1. Brenner, J. C. (2004). Forensic Science: an Illustrated Dictionary. CRC Press. Eckert, W. G. (1997). 2. Introduction to Forensic Sciences (2nd Edition). CRC Press. James, S. H., Nordby, J. J., Bell, S. (2014). 3. Forensic Science: An Introduction to Scientific and Investigative Techniques (4th Edition). CRC Press. 4. Nabar, B. (2017). Forensic Science in Crime Investigation. Asia Law House. S Nath, R. C. (2013). 5. Forensic Science and Crime Investigation: Abhijeet Publications. Saferstein, R. (2017). 6. Criminalistics: An Introduction to Forensic Science. Pearson. Sharma, B. R. (2019). 7. Forensic Science in Criminal Investigation & Trails. Universal Law Publishing Company. Yount, L. (2006). 8. Forensic Science: From Fibers to Fingerprints (Milestones in Discovery and Invention). Chelsea House publications. |
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M.SC. (5-YEAR INTEGRATED) FORENSIC SCIENCE: SEMESTER-I

| Course Type | Course Code | Name of the Course | Credit | Contact Hours/ Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
|---------------------------------|-------------|---|--------|---------------------|---------------------------|----------------|------------|---------------|
| CC-MI 2 credit (Scheme A) | B23-FSC-103 | Introduction to Forensic Science | 1 | 1 | 10 | 20 | 30 | 3 hrs. |
| | | Practical | 1 | 2 | 5 | 15 | 20 | 4 hrs. |

Level of the course: 100-199

Pre-requisite for the course (if any): Any Science Subject at 4.0 Level (Class XII)

Course Learning Outcomes (CLOs): At the end of the course the student should be able to:

1. Learn the significance of forensic science to human society.
2. Learn the fundamental principles and functions of forensic science.
3. To Study the history of forensic science.
4. To acquire knowledge on agencies involved in crime detection and investigation.
5. Understand crime cases and their components.

Instructions for Paper-Setter

1. Nine questions will be set in all. All questions will carry equal marks.
2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 and four more questions selecting one question from each unit.

| UNIT | TOPICS | CONTACT HOURS |
|------------------------|---|---------------|
| I | History of Development of Forensic Science in India History of Development of Forensic Science in India Functions of forensic science. Historical aspects of forensic science - Definitions and concepts in forensic science. Scope of forensic science. Need of forensic science. Basic Principles of forensic science. | 4 |
| II | Tools and Techniques in Forensic Science Pioneers Branches of forensic science. Forensic science in international perspectives, including set up of INTERPOL and FBI. Duties of forensic scientists. Code of conduct for forensic scientists. Qualifications of forensic scientists. | 4 |
| III | Organizational set up of Forensic Science Laboratories in India Hierarchical set up of Central Forensic Science Laboratories, State Forensic Science Laboratories, Government Examiners of Questioned Documents, Fingerprint Bureaus, National Crime Records Bureau, Police & Detective Training Schools, Bureau of Police Research & Development, Directorate of Forensic Science services and Mobile Crime Laboratories. Police Academies. Police dogs. Services of crime laboratories. Basic services and optional services. | 4 |
| IV | Agencies Involved in Crime Detection and Investigation Functions and hierarchical set up of Law enforcement agencies: civil police, reserve police; Government Examiners of Questioned Documents; Fingerprint Bureaus; National Crime Records Bureau; Police & Detective Training Schools; Bureau of Police Research & Development; National and State Police Academies, Police Training Schools/Colleges, Dog Squad, Bomb Detection and Defusal Squad, RAW, CBI, INTERPOL, NIA and FBI. | 3 |
| V Practical | Practical 1. To study the history of crime cases from a forensic science perspective. 2. To review the sections of forensic science at INTERPOL and compare them with those in Central Forensic Science Laboratories in India. Include suggestions for improvements if any. 3. To study the annual reports of the National Crime Records Bureau and depict the data on different types of crime cases using smart art/templates. | 30 |

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| | <p>4. To write reports on different types of crime cases.</p> <p>5. To examine the hierarchical setup of different forensic science establishments and suggest improvements.</p> <p>6. To examine the list of projects undertaken by the Bureau of Police Research and Development and suggest the thrust areas of research in Police Science.</p> <p>7. To compare the code of conduct prescribed by different establishments for forensic scientists.</p> | |
| Suggested Evaluation Methods | | |
| <p>Internal Assessment:</p> <p>➤ Theory</p> <ul style="list-style-type: none"> • Class Participation: 4 • Seminar/presentation/assignment/quiz/class test etc.: NA • Mid-Term Exam: 6 <p>➤ Practicum</p> <ul style="list-style-type: none"> • Class Participation: NA • Seminar/Demonstration/Viva-voce/Lab records etc.: 5 • Mid-Term Exam: NA | <p>End Term Examination:</p> <p>➤ Theory</p> <ul style="list-style-type: none"> • Written Examination: 20 <p>➤ Practicum</p> <ul style="list-style-type: none"> • Practical Examination: 15 | |
| Learning Resources | | |
| <ol style="list-style-type: none"> 1. B.B. Nanda and R.K. Tiwari, Forensic Science in India: A Vision for the Twenty-First Century, Select Publishers, New Delhi (2001). 2. M.K. Bhasin and S. Nath, Role of Forensic Science in the New Millennium, University of Delhi, Delhi (2002). 3. S.H. James and J.J. Nordby, Forensic Science: An Introduction to Scientific and Investigative Techniques, 2nd Edition, CRC Press, Boca Raton (2005). 4. W.G. Eckert and R.K. Wright in Introduction to Forensic Sciences, 2nd Edition, W.G. Eckert (ED.), CRC Press, Boca Raton (1997). 5. R. Saferstein, Criminalistics, 8th Edition, Prentice Hall, New Jersey (2004). W.J. Tilstone, M.L. Hastrup and C. Hald, Fisher's Techniques of Crime Scene Investigation, CRC Press, Boca Raton (2013). | | |

M.SC. (5-YEAR INTEGRATED) FORENSIC SCIENCE: SEMESTER-I

| Course Type | Course Code | Name of the Course | Credit | Contact Hours/Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
|-----------------------------------|-------------|--------------------|--------|--------------------|---------------------------|----------------|------------|---------------|
| MDC-1 3 credit (Scheme A&C) | B23-FSC-104 | Basic Forensic-I | 2 | 2 | 15 | 35 | 50 | 3 hrs. |
| | | Practical | 1 | 2 | 5 | 20 | 25 | 4 hrs. |

Level of the course: 100-199

Pre-requisite for the course (if any): Any Science Subject at 4.0 Level (Class XII)

Course Learning Outcomes (CLOs): At the end of the course the student should be able to:

1. Learn the basic concepts of forensic science.
2. Study of the history of forensic science
3. Understand the organization of forensic laboratories.
4. Acquire knowledge of agencies involved in crime detection and investigation.
5. Understand the safety considerations while handling evidence.

Instructions for Paper-Setter

1. Nine questions will be set in all. All questions will carry equal marks.
2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 and four more questions selecting one question from each unit.

| UNIT | TOPICS | CONTACT HOURS |
|------------------------|---|---------------|
| I | Concept of Forensic Science Forensic Science: Definition, Basic Principles, Historical Development of Forensic Science in India and in Abroad, Branches of Forensic Science, Scope & Need, Ethics of Forensic Science, Tools and Techniques of Forensic Science. International Perspectives of Forensic Science. | 8 |
| II | Terminologies in Forensic Science Terminologies in forensic science: First responder, chain of custody, mahazaar; Code of conduct for forensic scientists; Qualifications of forensic scientists; Duties of forensic scientists; Data depiction; Report writing. Ethics in Forensic Science. | 8 |
| III | Institutions of Forensic Science Forensic Science Institutions: Directorate of Forensic Science Services, Central Forensic Science Laboratories, State Forensic Science Laboratories, Regional Forensic Science Laboratories, Mobile Forensic Science Laboratory, Organizational Setup, GEQD, FPB, NCRB, etc. | 7 |
| IV | Crime Detection Hierarchical Crime: definition, characteristics of crime, elements of crime, and crime triangle. Types of Crime: Crimes against persons, violent crimes, sexual offences, crimes against property, cyber-crime, hate crimes and public disorder, emerging crimes. | 7 |
| V Practical | Practical 1. To study the history of crime cases from a forensic science perspective. 2. To Visit the Forensic Science Laboratory. 3. To study National Crime Records Bureau reports and depict the data on different types of crime cases. 4. To write reports on different types of crime cases. 5. To examine the hierarchical setup of different forensic science establishments and suggest improvements. 6. To compare the code of conduct prescribed by different establishments for forensic | 30 |

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| | scientists. | |
| Suggested Evaluation Methods | | |
| Internal Assessment: <ul style="list-style-type: none"> > Theory <ul style="list-style-type: none"> • Class Participation: 4 • Seminar/presentation/assignment/quiz/class test etc.: 4 • Mid-Term Exam: 7 > Practicum <ul style="list-style-type: none"> • Class Participation: NA • Seminar/Demonstration/Viva-voce/Lab records etc.: 5 • Mid-Term Exam: NA | | End Term Examination: <ul style="list-style-type: none"> > Theory <ul style="list-style-type: none"> • Written Examination: 35 > Practicum <ul style="list-style-type: none"> • Practical Examination: 20 |
| Learning Resources | | |
| <ol style="list-style-type: none"> 1. B.B. Nanda and R.K. Tiwari, Forensic Science in India: A Vision for the Twenty-First Century, Select Publishers, New Delhi (2001). 2. M.K. Bhasin and S. Nath, Role of Forensic Science in the New Millennium, University of Delhi, Delhi (2002). 3. S.H. James and J.J. Nordby, Forensic Science: An Introduction to Scientific and Investigative Techniques, 2nd Edition, CRC Press, Boca Raton (2005). 4. W.G. Eckert and R.K. Wright in Introduction to Forensic Sciences, 2nd Edition, W.G. Eckert (ED.), CRC Press, Boca Raton (1997). 5. R. Saferstein, Criminalistics, 8th Edition, Prentice Hall, New Jersey (2004). W.J.Tilstone, M.L. Hastrup and C. Hald, Fisher's Techniques of Crime Scene Investigation, CRC Press, Boca Raton (2013). | | |

M.SC. (5-YEAR INTEGRATED) FORENSIC SCIENCE: SEMESTER-2

| Course Type | Course Code | Name of the Course | Credit | Contact Hours/ Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
|---|-------------|--------------------|--------|---------------------|---------------------------|----------------|------------|---------------|
| CC-2 MCC-3 4 credit (Scheme A&C) | B23-FSC-201 | Forensic & Law | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |

Level of the course: 100-199

Pre-requisite for the course (if any): Any Science Subject at 4.0 Level (Class XII)

Course Learning Outcomes (CLOs): At the end of the course the student should be able to:

1. Describe the organizations involved in the criminal justice system.
2. Point out the provisions of the Indian Penal Code with respect to the offences.
3. Appraise the provisions of the Code of Criminal Procedure that apply to forensic science.
4. Summarize the provision of the Indian Evidence Act and some minor acts.
5. Understand the practical aspects of Criminal Procedure related to forensic science.

Instructions for Paper-Setter

1. Nine questions will be set in all. All questions will carry equal marks.
2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 and four more questions selecting one question from each unit.

| UNIT | TOPICS | CONTACT HOURS |
|------------|---|---------------|
| I | <p>Introduction to the Criminal Justice System</p> <p>Criminal Justice System (CJS): Meaning, Purpose and Social Relevance; Legislative Process in Criminal Justice System; Adversarial and Inquisitorial Systems of Criminal Justice System; Coordination in CJS; Reforms in CJS (Malimath Committee Report); Fundamental Elements in Judicial Functioning: Due Process, Speedy Trials and Access to Justice; Hierarchy of courts in India; Alternative Dispute Resolution System (ADRS): Arbitration, Mediation and Counselling, Lok Adalats, Juvenile court, Mahila courts; Restorative Justice</p> | 12 |
| II | <p>Salient Features of the Indian Penal Code</p> <p>Elements of Crime: Actus Reus & Mens Rea; Elements of Criminal liability; Principles of group liability (Section 149, 34, 109, 120B IPC); General Exceptions (A): Excusable defences (Sec. 76-95); General Exceptions (B): Justifiable Defences (Sec. 96-106) Offences against Human body: Hurt, Grievous hurt, Culpable Homicide, Murder, Dowry Death, Kidnapping, Abduction, Rape and Acid attack (Sec. 302) Offence against property: Theft, Robbery, Dacoity, Cheating and Criminal Breach of Trust Criminal Amendment Act, 2013: IPC Sec 354, Sec 326 and Sec 376</p> | 11 |
| III | <p>Criminal Procedure Code</p> <p>Constitution of Criminal Courts and Functionaries under the Code; Arrest- Meaning and purpose, arrest with/ without a warrant, arrest of a woman, arrest by a private person; Search and Seizure with/without a warrant and general provisions; F.I.R. and procedure after the recording of the F.I.R; Bail- Concept, Purpose & Constitutional Overtones; Anticipatory bail; Charge- Framing of Charge; 21 Form and content of charge; Separate charges for distinct offence Trials- Trial before a court of the session; of warrant cases; of summons cases; Summary trials; Judgment, Appeal, Reference, Revision and Transfer of cases. Chemical examiner's report. CrPC (1873) - 26, 27, 29, 31, 144, 154-158, 176, 291, 292, 293.</p> | 11 |
| IV | <p>Law of Evidence and Minor Acts</p> <p>Indian Evidence Act: Introduction; Different types of Evidence; Burden of proof; Relevancy</p> | 11 |

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| | and admissibility of facts, admissions, and confessions; Relevancy of confessions and dying declarations; Expert opinion: Appreciating expert evidence in court; Expert witness; Cross-Examination and Reexamination of Witnesses, Sections - 32, 45, 46, 47, 57, 58, 60, 73, 114(A) 135, 136, 137, 138, 141. Protection of Children from Sexual Offences Act (POCSO Act), 2012; Protection of Women from Domestic Violence Act, 2005 and Juvenile Justice (Care and Protection of Children) Act, 2015. | |
| V Practical | <p>Practical</p> <ol style="list-style-type: none"> 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 prepare a schedule of the offences which may be tried under Section 260(2) of the Criminal Procedure Code. 4. To study a criminal case in which an accused was punished on charges of murder under Section 302. 5. To study a crime case in which an accused was punished on the charge of rape under Section 375. 6. To cite an example of a case in which an expert's opinion was called for under Section 45 of the Indian Evidence Act. 7. To cite a case wherein a person was detained under Article 22(5) of the Indian Constitution. Express your views on whether the rights of the person as enlisted in this Article were taken care of. 8. To prepare a schedule of persons convicted under the Narcotics, Drugs, and Psychotropic Act statistically analyze the age group to which they belonged. 9. To study a case in which Drugs and Cosmetic Act was invoked. 10. To study a case in which the Explosive Substances Act was invoked. | 30 |
| Suggested Evaluation Methods | | |
| <p>Internal Assessment:</p> <p>➤ Theory</p> <ul style="list-style-type: none"> • Class Participation: 5 • Seminar/presentation/assignment/quiz/class test etc.: 5 • Mid-Term Exam: 10 <p>➤ Practicum</p> <ul style="list-style-type: none"> • Class Participation: NA • Seminar/Demonstration/Viva-voce/Lab records etc.: 10 • Mid-Term Exam: NA | | <p>End Term Examination:</p> <p>➤ Theory</p> <ul style="list-style-type: none"> • Written Examination: 50 <p>➤ Practicum</p> <p>Practical Examination: 20</p> |
| Learning Resources | | |
| <ol style="list-style-type: none"> 1. D.A. Bronstein, Law for the Expert Witness, CRC Press, Boca Raton (1999). 2. Vipa P. Sarthi, Law of Evidence, 6th Edition, Eastern Book Co., Lucknow (2006). 3. A.S. Pillia, Criminal Law, 6th Edition, N.M. Tripathi Pvt Ltd., Mumbai (1983). 4. R.C. Nigam, Law of Crimes in India, Volume I, Asia Publishing House, New Delhi (1965). 5. (Chief Justice) M. Monir, Law of Evidence, 6th Edition, Universal Law Publishing Co. Pvt. Ltd., New Delhi (2002). | | |

M.SC. (5-YEAR INTEGRATED) FORENSIC SCIENCE: SEMESTER-2

| Course Type | Course Code | Name of the Course | Credit | Contact Hours/ Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
|----------------------------------|-------------|------------------------|--------|---------------------|---------------------------|----------------|------------|---------------|
| DSEC-1 4 credit (Scheme C) | B23-FSC-202 | Crime Scene Management | 3 | 3 | 20 | 50 | 70 | 3 hrs. |
| | | Practical | 1 | 2 | 10 | 20 | 30 | 4 hrs. |

Level of the course: 100-199

Pre-requisite for the course (if any): Any Science Subject at 4.0 Level (Class XII)

Course Learning Outcomes (CLOs): At the end of the course the student should be able to:

1. Learn the basic concepts of the crime scene.
2. To Study types of evidence found in crime scenes.
3. To understand the safety considerations while handling evidence.
4. To acquire knowledge on agencies involved in crime detection and investigation.
5. Use the best technique for the collection and preservation of evidence from the scene of crime.

Instructions for Paper-Setter

1. Nine questions will be set in all. All questions will carry equal marks.
2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 and four more questions selecting one question from each unit.

| UNIT | TOPICS | CONTACT HOURS |
|------------|--|---------------|
| I | <p>Introduction to Crime Scene</p> <p>Crime scene: Definition; Types of crime scenes: Primary, Secondary, Indoor, Outdoor, based on the manner of crime: homicide, suicide, accidental; Actions of first responding officer: emergency care, secure and control, Statements of the victim, witness, suspects, databases and records, officer safety, release scene to appropriate authorities. Types of evidence found at the crime scene: physical evidence, biological evidence, digital evidence, individual evidence, and class evidence. The evaluation of 5Ws (who?, what?, when?, where?, why?) and 1H (how). Role of different agencies involved in crime scene management: Police, Forensic Science Laboratories, Medico-legal experts, Judicial officers.</p> | 12 |
| II | <p>Crime Scene Investigation</p> <p>Securing the crime scene; Evaluating the crime scene; Preliminary walk-through and documentation of the crime scene; Search and seizure of the crime scene Crime scene search patterns: strip method, grid method, zone/quadrant method, spiral method (inward and outward), wheel, and random; Documenting the crime scene: Photography of the crime scene: Wide range, mid-range and close up photography; Sketching: Rough and final sketch (Triangulation, Baseline, and polar coordinate methods), Videography, 3D Crime Scene Mapping, contemporaneous notes. Identifying and listing evidence along with their evidentiary value.</p> | 11 |
| III | <p>Collection and Preservation of Evidence</p> <p>Collection and preservation of evidence along with control samples and standards: blood, urine, saliva, semen, tissue, hair, soil, paint, glass, bullet, cartridge case, clothing, weapons (knife, firearm), documents, drugs, fingerprints, tool marks, explosive material, bite marks; General safety considerations while handling evidence in the crime scene; Forwarding evidence to the Forensic Science Laboratory; Chain of custody.</p> | 11 |
| IV | <p>Special Crime Scenes and Crime Scene Reconstruction</p> <p>Arson, mass disasters, road traffic accidents, wildlife crime scene: their scene management and evidence collection for identification; Crime scene reconstruction: Introduction, importance,</p> | 11 |

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| | nature; Principles; Stages: data collection, conjecture, hypothesis formulation, testing, theory formation. Crime Scene Investigation Kit, Alternate Light Source, ABFO Scales, Placards, Fingerprint Detection kit, Barricading Equipment, Evidence Tags, Sniffer Dogs, Packaging Equipment. ESDA, GPR (Ground Penetrating Radar), RUVIS HAZMAT Suits, Personal Protective Equipment. Product Safety Equipment. | |
| V Practical | <p>Practical</p> <ol style="list-style-type: none"> 1. Securing and evaluating indoor and outdoor scenes of crime. 2. Searching indoor scenes of crime using the spiral technique and listing evidence. 3. Searching outdoor scenes of crime using the grid search technique. 4. Photographing the scene of the crime with at least five pieces of evidence. 5. Sketching of the indoor crime scene using the baseline method. 6. Sketching of the outdoor crime scene using the triangulation method. 7. Making contemporaneous notes while investigating a scene of the crime. 8. Collection, preservation, sealing, and forwarding of soil samples from the crime scene. 9. Collection, preservation, sealing, and forwarding of blood samples from crime scene. 10. Crime scene reconstruction of a simulated scene of murder/burglary. | 30 |
| Suggested Evaluation Methods | | |
| <p>Internal Assessment:</p> <ul style="list-style-type: none"> ➤ Theory <ul style="list-style-type: none"> • Class Participation: 5 • Seminar/presentation/assignment/quiz/class test etc.: 5 • Mid-Term Exam: 10 ➤ Practicum <ul style="list-style-type: none"> • Class Participation: NA • Seminar/Demonstration/Viva-voce/Lab records etc.: 10 • Mid-Term Exam: NA | | <p>End Term Examination:</p> <ul style="list-style-type: none"> ➤ Theory <ul style="list-style-type: none"> • Written Examination: 50 ➤ Practicum <ul style="list-style-type: none"> • Practical Examination: 20 |
| Learning Resources | | |
| <ol style="list-style-type: none"> 1. Saferstein: Criminalistics – An Introduction to Forensic Science, Prentice Hall Inc. USA 91995) 2. James, S.H. and Nordby, J.J.; Forensic Science; an Introduction to Scientific and Investigative Techniques, CRC Press, USA (2003) 3. O’ Hara & Osterberg: An Introduction to Criminalistics. 4. Forest: Forensic Science, An Introduction. 5. Lee, Honry: Advances in Forensic Science. 6. Sharma B R: Forensic Science in Criminal Investigation and trials. 7. Mordby, J Deed Reckoning – The Art of Forensic Science Detection, CRC Press LLC, Boca Raton FL, CRC Press (2000). 8. Moenseens, A.A., Starrs, J.E, Henderson, C.E. and Inbare, F.E., 1995 Scientific Evidence in Civil and Criminal Cases, IV edition, Foundation Press, Westbury, New York. | | |

M.SC. (5-YEAR INTEGRATED) FORENSIC SCIENCE: SEMESTER-2

| Course Type | Course Code | Name of the Course | Credit | Contact Hours/ Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
|---------------------------------|-------------|-------------------------|--------|---------------------|---------------------------|----------------|------------|---------------|
| CC-M2 2 credit (Scheme A) | B23-FSC-203 | Crime Scene & Evidences | 1 | 1 | 10 | 20 | 30 | 3 hrs. |
| | | Practical | 1 | 2 | 5 | 15 | 20 | 4 hrs. |

Level of the course: 100-199

Pre-requisite for the course (if any): Any Science Subject at 4.0 Level (Class XII)

Course Learning Outcomes (CLOs): At the end of the course the student should be able to:

1. Learn the basic concepts of the crime scene.
2. Study of types of evidence found in crime scenes.
3. Understand the safety considerations while handling evidence.
4. Acquire knowledge of agencies involved in crime detection and investigation.
5. Use the best technique for the collection and preservation of evidence from the scene of crime

Instructions for Paper-Setter

1. Nine questions will be set in all. All questions will carry equal marks.
2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 and four more questions selecting one question from each unit.

| UNIT | TOPICS | CONTACT HOURS |
|------------------------------|--|---------------|
| I | Introduction to Crime Scene Crime scene: Definition; Types of crime scenes: Primary, Secondary, Indoor, Outdoor, based on the manner of crime: homicide, suicide, accidental; Actions of first responding officer: emergency care, secure and control, Statements of the victim, witness, suspects, databases and records, officer safety, release scene to appropriate authorities. | 4 |
| II | Types of Evidence Types of evidence found in the crime scene: physical evidence, biological evidence, digital evidence, individual evidence, class evidence. The evaluation of 5Ws (who?, what?, when?, where?, why?) and 1H (how). Role of different agencies involved in crime scene management: Police, Forensic Science Laboratories, Medico-legal experts, Judicial officers. | 4 |
| III | Collection and Preservation of Evidence Collection and preservation of evidence along with control samples and standards: blood, urine, saliva, semen, tissue, hair, soil, paint, glass, bullet, cartridge case, clothing, weapons (knife, firearm), documents, drugs, fingerprints, tool marks, explosive material, bite marks; General safety considerations while handling evidence in the crime scene; Forwarding evidence to the Forensic Science Laboratory; Chain of custody. | 4 |
| IV | Type of Crime Scenes Special Crime Scenes, Arson, mass disasters, road traffic accidents, wildlife crime scene: their scene management and evidence collection for identification. | 3 |
| V Practical | Practical 1. To Secure and evaluate indoor and outdoor scenes of crime. 2. Searching indoor scenes of crime using the spiral technique and listing evidence. 3. Searching outdoor scenes of crime using the grid search technique. 4. Photographing the scene of the crime with at least five pieces of evidence. 5. Sketching of the indoor crime scene using the baseline method. | 30 |

Suggested Evaluation Methods

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| <p>Internal Assessment:</p> <ul style="list-style-type: none"> > Theory <ul style="list-style-type: none"> • Class Participation: 4 • Seminar/presentation/assignment/quiz/class test etc.: NA • Mid-Term Exam: 6 > Practicum <ul style="list-style-type: none"> • Class Participation: NA • Seminar/Demonstration/Viva-voce/Lab records etc.: 5 • Mid-Term Exam: NA | <p>End Term Examination:</p> <ul style="list-style-type: none"> > Theory <ul style="list-style-type: none"> • Written Examination: 20 > Practicum <ul style="list-style-type: none"> • Practical Examination: 15 |
| <p>Learning Resources</p> | |
| <ol style="list-style-type: none"> 1. B.B. Cooper, J. E., Cooper, M. E. (2013). Wildlife forensic investigation: principles and practice. CRC Press. 2. Everett, J. B. (2015). Complete Crime Scene Investigation Handbook. CRC Press. 3. Fisher, B. A., Fisher, D. (2012). Techniques of Crime Scene Investigation, (8th Edition). CRC Press. 4. Huffman, J. E., Wallace, J. R. (2012). Wildlife forensics: methods and applications (Vol. 6). Wiley Blackwell. 5. James, S. H., Nordby, J. J., Bell, S. (2014). Forensic Science: An Introduction to Scientific and Investigative Techniques (4th Edition). CRC Press. 6. Linacre, A. (2009). Forensic Science in Wildlife Investigations. Taylor & Francis. 7. Robert R. Ogle, S. L. (2017). Crime Scene Investigation and Reconstruction. Pearson. 8. Shaler, R. C. (2011). Crime Scene Forensics: A Scientific Method Approach. CRC Press. 9. Tom Bevel, R. M. (2012). Bloodstain Pattern Analysis with an Introduction to Crime Scene Reconstruction. CRC Press. | |

M.SC. (5-YEAR INTEGRATED) FORENSIC SCIENCE: SEMESTER-2

| Course Type | Course Code | Name of the Course | Credit | Contact Hours/Week | Internal Assessment marks | End Term Marks | Max. Marks | Exam Duration |
|-----------------------------------|-------------|--------------------|--------|--------------------|---------------------------|----------------|------------|---------------|
| MDC-3 3 credit (Scheme A&C) | B23-FSC-204 | Basic Forensic-2 | 2 | 2 | 15 | 35 | 50 | 3 hrs. |
| | | Practical | 1 | 2 | 5 | 20 | 25 | 4 hrs. |

Level of the course: 100-199

Pre-requisite for the course (if any): Any Science Subject at 4.0 Level (Class XII)

Course Learning Outcomes (CLOs): At the end of the course the student should be able to:

- Learn the basic concepts of the crime scene.
- Study of types of evidence found in crime scenes.
- Understand the safety considerations while handling evidence.
- To acquire knowledge on agencies involved in crime detection and investigation.
- Demonstrate the techniques of securing and searching of indoor and outdoor crime scenes

Instructions for Paper-Setter

- Nine questions will be set in all. All questions will carry equal marks.
- Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 and four more questions selecting one question from each unit.

| UNIT | TOPICS | CONTACT HOURS |
|------------------------|---|---------------|
| I | Crime Scene Investigation Forensic Crime Scene Investigation 10 hours Securing the crime scene; Evaluating the crime scene; Preliminary walk-through and documentation of the crime scene; Search and seizure of the crime scene Crime scene search patterns: strip method, grid method, zone/quadrant method, spiral method (inward and outward), wheel, and random. | 8 |
| II | Recording of Crime Scene Documenting the crime scene: Photography of the crime scene: Wide range, mid-range and close-up photography; Sketching: Rough and final sketch (Triangulation, Baseline, and polar coordinate methods), Videography, 3D Crime Scene Mapping, contemporaneous notes. Identifying and listing evidence along with their evidentiary value. | 8 |
| III | Crime Scene Management Forensic Science Introduction to crime scene management, duties of first responding officer at the scene of crime, duties of crime scene investigator, specialized personnel at the crime scene: biological or chemical terrorist crime scene | 7 |
| IV | Crime Scene Reconstruction Crime scene reconstruction: Introduction, importance, nature; Principles; Stages: data collection, conjecture, hypothesis formulation, testing, theory formation. Crime Scene Investigation Kit, Alternate Light Source, ABFO Scales, Placards, Fingerprint Detection kit, Barricading Equipments, Evidence Tags, Sniffer Dogs, Packaging Equipments. | 7 |
| V Practical | Practical 1. Sketching of the outdoor crime scene using the triangulation method. 2. Making contemporaneous notes while investigating a scene of crime. 3. Collection, preservation, sealing, and forwarding of soil samples from crime scenes. 4. Collection, preservation, sealing, and forwarding of blood samples from crime scenes. 5. Crime scene reconstruction of a simulated scene of murder/burglary. | 30 |

Suggested Evaluation Methods

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| Internal Assessment: <ul style="list-style-type: none">➤ Theory<ul style="list-style-type: none">• Class Participation: 4• Seminar/presentation/assignment/quiz/class test etc.: 4• Mid-Term Exam: 7➤ Practicum<ul style="list-style-type: none">• Class Participation: NA• Seminar/Demonstration/Viva-voce/Lab records etc.: 5• Mid-Term Exam: NA | End Term Examination: <ul style="list-style-type: none">➤ Theory<ul style="list-style-type: none">• Written Examination: 35➤ Practicum<ul style="list-style-type: none">• Practical Examination: 20 |
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Learning Resources

1. B.B. Cooper, J. E., Cooper, M. E. (2013). Wildlife forensic investigation: principles and practice. CRC Press.
2. Everett, J. B. (2015). Complete Crime Scene Investigation Handbook. CRC Press.
3. Fisher, B. A., Fisher, D. (2012). Techniques of Crime Scene Investigation, (8th Edition). CRC Press.
4. Huffman, J. E., Wallace, J. R. (2012). Wildlife forensics: methods and applications (Vol. 6). Wiley Blackwell.
5. James, S. H., Nordby, J. J., Bell, S. (2014). Forensic Science: An Introduction to Scientific and Investigative Techniques (4th Edition). CRC Press.
6. Linacre, A. (2009). Forensic Science in Wildlife Investigations. Taylor & Francis.
7. Robert R. Ogle, S. L. (2017). Crime Scene Investigation and Reconstruction. Pearson.
8. Shaler, R. C. (2011). Crime Scene Forensics: A Scientific Method Approach. CRC Press.
9. Tom Bevel, R. M. (2012). Bloodstain Pattern Analysis with an Introduction to Crime Scene Reconstruction. CRC Press.