

Government Institute of Forensic Science, Nagpur

Department of Forensic Science

B. Sc. Forensic Science

Course Title: Basics of Forensic Science (Semester-I)

Level: UG

Course Objective: This course will cover:

- The scenario of crime in India.
- Sociological aspects of crime and socio-criminal intention.
- The significance of criminal behaviour theories.
- The tools and techniques for analysis of different types of crime scene evidence and an idea about various preventive measures.
- The working and establishment of police in central and state level.
- The fundamental laws and principle of Forensic Science
- Historical perceptive of Forensic Science in India.
- Idea regarding scope and significance of Forensic Science.

Student Learning Objectives: On completion of this course the students will be able to:

- **Identify:** Types of crimes, establishment of police in India, Fundamentals of Forensic Science and its importance in Society.
- **Describe:** Types of crime, role of society to initiate crime, basic and fundamental principle of Forensic Science, History, need and scope of Forensic Science and relevant section of police Act.
- **Differentiate:** The various types of crime in society.
- **Analyze:** Scope of forensic science.
- **Review:** Role and Importance of Forensic science in the process of investigation.

Pedagogy: The course will be taught in active-learning mode, incorporating lectures along with relevant case studies and sections, with the help of PowerPoint presentations, general discussions, and interactions.



Ashish Badiye
Head, Department of Forensic Science
Govt. Institute of Forensic Science, Nagpur

Government Institute of Forensic Science, Nagpur

Department of Forensic Science

Course Title: Basics of Forensic Science (Semester-II)

Level: UG

Course Objective: This course will cover:

- Growth of Forensic Science Laboratories and educational set-up in India.
- Divisions of Forensic Science Laboratories.
- Crime scene and Crime scene management.
- Types, collection and significance of physical evidences.

Student Learning Objectives: On completion of this course the students will be able to:

- **Identify**: Establishment of Forensic Science Laboratories and educational institutions in India, various types of crime scene, link between police, Forensic scientific officers, and judiciary, Collection and packaging techniques employ to collect physical evidences
- **Describe**: Types of crime scene and physical evidences, role and responsibilities of police, medicolegal officers and judiciary, fundamental rules for collection and packaging of various types of physical evidences.
- **Differentiate**: The various types of crime scene and physical evidences.
- **Analyze**: Growth of Forensic Science in India.
- **Review**: Importance of proper collection and analysis of physical evidences.

Pedagogy: The course will be taught in active-learning mode, incorporating lectures along with relevant case studies and sections, with the help of PowerPoint presentations, mock crime scenes, general discussions, and interactions.



Ashish Badiye
Head, Department of Forensic Science
Govt. Institute of Forensic Science, Nagpur

Government Institute of Forensic Science, Nagpur

Department of Forensic Science

Course Title: Advanced Forensic Science (Semester-III)

Level: UG

Course Objective: This course will cover

- Brief on criminal profiling, portrait parley.
- Documentation of crime scene.
- Interpretation of blood stain pattern.
- Significance of Fingerprint

Student Learning Objectives: On completion of this course the students will be able to:

- **Identify**: Method of identification of suspects, Chain of custody, Forensic Fingerprint analysis.
- **Describe**: Crime and crime scene management, various types of blood spatter, recognition of blood spatter, magnitude of fingerprint.
- **Differentiate**: Types of spatter, Fingerprints.
- **Analyze**: The role and significance of fingerprints and other method of identification of suspects.
- **Review**: Methods of personal identification.

Pedagogy: The course will be delivered with presentation, lectures, discussion, case studies with the help of PowerPoint presentations.



Ashish Badiye
Head, Department of Forensic Science
Govt. Institute of Forensic Science, Nagpur

Government Institute of Forensic Science, Nagpur

Department of Forensic Science

Course Title: Advanced Forensic Science (Semester-IV)

Level: UG

Course Objective: This course will cover

- Basics and fundamental principles of forensic document analysis.
- Art and tools of questioned document analysis.
- Introduction and interpretation of sections under IPC, CrPc, and IEA.
- Evaluation of various impressions.

Student Learning Objectives: On completion of this course the students will be able to:

- **Identify:** Basic rules of questioned document analysis, relevant sections of IPC, CrPc, and IEA, various impressions as a tool of personal identification.
- **Describe:** various types of questioned documents, Prosecution and Judicial Organization, Nature, collection and evaluations of various impressions.
- **Differentiate:** Examination in chief, Cross Examination and Re-examination, Ethics in Forensic Science and various marks of identification.
- **Analyze:** Questioned documents and various prints and related laws.
- **Review:** Tools of personal identifications.

Pedagogy: The course will be delivered with lectures, models, case studies and with PowerPoint presentations.



Ashish Badiye
Head, Department of Forensic Science
Govt. Institute of Forensic Science, Nagpur

Government Institute of Forensic Science, Nagpur

Department of Forensic Science

Course Title: Applied Forensic Science (Semester-V)

Level: UG

Course Objective: This course will cover

- Overview of global perspective of Forensic Science.
- Informed about ethical issues in Forensic Science.
- General idea about standardization and quality control of analytical laboratories.
- Note on various court procedures and an idea regarding scientific report writing.
- General classification of various offences and Crimes under Special and Local laws.

Student Learning Objectives: On completion of this course the students will be able to:

- **Identify**: Overview on development of Forensic Science in India, Ethical issues and various crimes under relevant and some special provisions.
- **Describe**: Organizational setup of forensic science lab and other national & international agencies, Quality management system for various analytical laboratories and agencies, Policing system.
- **Differentiate**: Internal and External Audit and various types of offences.
- **Analyze**: Offences and its related laws.
- **Review**: Global understanding on development of Forensic Science, and legal definition of offences.

Pedagogy: The course will be delivered with lectures, discussion, debates and with PowerPoint presentations.



Ashish Badiye
Head, Department of Forensic Science
Govt. Institute of Forensic Science, Nagpur

Government Institute of Forensic Science, Nagpur

Department of Forensic Science

Course Title: Applied Forensic Science (Semester-VI)

Level: UG

Course Objective: This course will cover

- The Art of managing crime scene.
- Detailed knowledge on questioned document analysis.
- Discuss various security features on Indian money and plastic money.
- Global and Indian overview on Medical jurisprudence.
- Medico legal investigation of death.

Student Learning Objectives: On completion of this course the students will be able to:

- **Identify**: Role of questioned document examiner, role and importance of medical jurisprudence and medico-legal officer.
- **Describe**: Crime scene management, Application of Forensic linguistics, ageing of paper and ink, examination of typewritten, photocopied document, security features of currency, passport, and credit and debit cards. Determination time and cause of death.
- **Differentiate**: Genuine and fake notes, plastic money and passport, anti-mortem and post- mortem wounds and injury.
- **Analyze**: various questioned documents.
- **Review**: Global understanding on medical jurisprudence and working standard of handwriting and document examination.

Pedagogy: The course will be delivered with lectures, discussion of real cases with students, hands on training for various aspects for advanced learning.



Ashish Badiye
Head, Department of Forensic Science
Govt. Institute of Forensic Science, Nagpur

Government Institute of Forensic Science, Nagpur

Department of Forensic Science

M. Sc. Forensic Science

(Semester –I)

Course Code: MFS-101:

Course Title: Paper I- Criminology

Course Objectives: The objectives of the course are:

- To understand various theories of criminology and Correlates of crime.
- To have an insight about the concept of victimology

Course Prerequisite: Students should have B.Sc. in Forensic Science

Students Learning Outcome: After the completion of the paper, the students will be able to

- Identify and differentiate between different types of crimes and their punitive aspects.
- Understand the role of victim and the victim-offender relationship.
- Describe the laws for the juveniles and the role of correctional institutions and their importance.

Pedagogy: The paper will be taught in active-learning mode, including lectures along with presentations, case studies, discussions, and interactions.

Course Code: MFS-102:

Course Title: Paper II- Advanced Forensic Science

Course Objectives: The objectives of the course are:

- To study various methods of searching, documenting and reconstructing of crime scenes.
- Importance of blood stain patterns and their interpretation
- Classify, develop, compare latent prints and significance of Automated Fingerprint Identification System

Course Prerequisite: Students should have B.Sc. in Forensic Science

Students Learning Outcome: At the end of this paper, the students will be able to

- Differentiate between different types of crime scenes and analyze different methods adopted for their investigation.
- Role of blood stain patterns in the reconstruction of crime scene.
- Establish the identity of individuals from different forms of fingerprints and their development methods.

Pedagogy: The paper will be taught in active-learning mode, including lectures along with presentations, various assignments to have a clear understanding of the topics, case studies, discussions, and interactions.



Ashish Badiye
Head, Department of Forensic Science
Govt. Institute of Forensic Science, Nagpur

Government Institute of Forensic Science, Nagpur

Department of Forensic Science

(Semester –II)

Course Code: MFS-201

Course Title: Paper IX- Criminology

Course Objectives: This paper will include:

- Different elements of Criminal Justice System.
- Role and Accountability of police towards law, people and society.
- Elements of I.P.C and Cr. P.C. relevant to forensic science.

Course Prerequisite: Students should have B.Sc. in Forensic Science

Students Learning Outcome: At the end of this paper, students will be able to

- Review the role and accountability of police in maintaining peace and order in the society by preventing crimes.
- Understand the admissibility of scientific evidence and the significance of physical evidences.
- Describe the procedure of recording evidences in the court and the importance of different types of witnesses.

Pedagogy: The paper will be taught in active-learning mode, including lectures along with presentations, visits to court, moot court, case studies, discussions, and interactions.

Course Code: MFS-202

Course Title: Paper X- Advanced Forensic Science

Course Objectives: This paper will include:

- Class and individual characteristics of different impression marks.
- Significance of lip prints, ear prints, foot prints, tire marks, skid marks, tool marks.
- Restoration of serial numbers and erased marks.

Course Prerequisite: Students should have B.Sc. in Forensic Science

Students Learning Outcome: At the end of this paper, students will be able to

- Evaluate and analyze foot prints, gait pattern and the speed of vehicle.
- Describe and differentiate various class and individual characteristics of various impression marks and their comparison.
- Identify and restore the serial and obliterated marks on various surfaces.

Pedagogy: The paper will be taught in active-learning mode, including lectures along with presentations, case studies, discussions, and interactions.



Ashish Badiye
Head, Department of Forensic Science
Govt. Institute of Forensic Science, Nagpur

Government Institute of Forensic Science, Nagpur

Department of Forensic Science

(Semester –III)

Course Code: MFS-302

Course Title: Paper XVIII- (Special Paper I: Questioned Documents Analysis)

Course Objectives: This paper will include:

- Instrumental analysis of questioned document
- Examination of ink and writing material.

Course Prerequisite: Students should have B.Sc. in Forensic Science/M.Sc. I Year Forensic Science.

Students Learning Outcome: At the end of this paper, students will be able to

- Examine questioned document manually as well as with the instrument.
- Carry out the analysis of ink and understand other identification features present on the document.
- Describe the techniques used in the analysis of writing material and ink.

Pedagogy: The paper will be taught in active-learning mode, including lectures along with presentations, case studies, discussions, and interactions along with hands on experience on the instrument.

Course Code: MFS-303

Course Title: Paper XIX (Special Paper-II: Advanced Fingerprint Development Methods)

Course Objectives: This paper will include:

- Advanced methods of development of latent fingerprints.
- Chemical Reaction between the chemicals used for the development of fingerprints

Course Prerequisite: Students should have B.Sc. in Forensic Science, M.Sc. I Year Forensic Science.

Students Learning Outcome: At the end of this paper, students will be able to

- Develop fingerprints using advanced methods like radioactive technique, biological technique, fluorescence.
- Understand the reaction mechanisms of different chemicals used for the development of fingerprints.
- Describe Metal Deposition methods and their significance.

Pedagogy: The paper will be taught in active-learning mode, including lectures along with presentations, case studies, discussions, and interactions along with hands on experience on the instrument.



Ashish Badiye
Head, Department of Forensic Science
Govt. Institute of Forensic Science, Nagpur

Government Institute of Forensic Science, Nagpur

Department of Forensic Science

(Semester –IV)

SPECIALIZATION I: QUESTIONED DOCUMENTS & FINGERPRINTS

Course Code: MFS-402

Course Title: Paper XXI (Special Paper-I: Forgery and Its Forensic Detection)

Course Objectives: This paper will include:

- Types of forgery, disguised writing.
- Examination of ink and writing material.
- Examination of security documents.

Course Prerequisite: Students should have B.Sc. in Forensic Science, M.Sc. I Year Forensic Science.

Students Learning Outcome: At the end of this paper, students will be able to

- Examine questioned document manually as well as with the instrument.
- Describe forensic accounting and corporate fraud.
- Differentiate between type written, printed and scanned documents.

Pedagogy: The paper will be taught in active-learning mode, including lectures along with presentations, demonstrations, discussions, and interactions along with hands on experience on the instrument.

Course Code: MFS-403

Course Title: Paper XXII (Special Paper II: Automated Fingerprint Identification System)

Course Objectives: This paper will include:

- The concept of Automated Fingerprint Classification Systems
- Advanced method of development of fingerprint
- Fingerprint Expert Witness

Course Prerequisite: Students should have B.Sc. in Forensic Science, M.Sc. I Year Forensic Science.

Students Learning Outcome: At the end of this paper, students will be able to

- Understand the different classification systems of Automated Fingerprint Identification System.
- Identify latent prints using different automated system of identification.
- Understand the fingerprint identification and verification system.

Pedagogy: The paper will be taught in active-learning mode, including lectures along with presentations, case studies, discussions, and interactions.



Ashish Badiye
Head, Department of Forensic Science
Govt. Institute of Forensic Science, Nagpur

Government Institute of Forensic Science, Nagpur

Department of Forensic Science

Course Code: MFS-404

Course Title: Paper XXIII (Special Paper III: Forensic Linguistics)

Course Objectives: This paper will include:

- Phonetics, phonology and linguistic proficiency
- Speaker and Author Identification
- Psycholinguistics and Tape Authentication

Course Prerequisite: Students should have B.Sc. in Forensic Science, M.Sc. I Year Forensic Science.

Students Learning Outcome: At the end of this paper, students will be able to

- Describe different areas of research in forensic linguistics.
- Identify the language used in threatening, anonymous letters.
- Understand the relationship between psycholinguistics and forensic linguistics

Pedagogy: The paper will be taught in active-learning mode, including lectures along with presentations, diagrams, discussions, and interactions.

Course Code: MFS-405

Course Title: XXIV (Special Paper IV-Forensic Photography)

Course Objectives: This paper will include:

- Basics of photography
- Types of Photography
- Digital Photography and basics of digital imaging

Course Prerequisite: Students should have B.Sc. in Forensic Science, M.Sc. I Year Forensic Science.

Students Learning Outcome: At the end of this paper, students will be able to

- Understand the fundamentals of taking a photograph and different file formats
- Describe the basic principles of black & white and color photography.
- Understand the developing techniques using different developers and fixers.
- Describe the significance of photography in forensic science.

Pedagogy: The paper will be taught in active-learning mode, including lectures along with presentations, case studies, discussions, e-lectures, and interactions along with hands on experience on the instrument. (Camera)



Ashish Badiye
Head, Department of Forensic Science
Govt. Institute of Forensic Science, Nagpur