T.S. MISHRA UNIVERSITY

ORDINANCE - H014

MASTER OF SCIENCE
IN
FORENSIC SCIENCES

(M.Sc. FS)

(w.e.f. Academic Session 2026-27)

Notified on 12/09/2023
Established under the Uttar Pradesh Private Universities Amendment Act 2023

UP Act No.10 of 2023

PREFACE

To ensure seamless education and to achieve academic excellence in the University, rules and regulations for the **"MASTER OF SCIENCE IN FORENSIC SCIENCES (M.Sc. FS)"** course are published vide Ordinance 14. These regulations will be in addition to the norms set by the regulatory body from time to time.

T.S. Misra College of Allied and Healthcare Sciences
Department of Forensic Science

Ordinance for Master of Science in Forensic Sciences (M.Sc. FS), Duration: (02 Years)

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Master of Science in Forensic Sciences (M.Sc. FS)

1.1 Objectives/Aim of the program:

The Master of Science in Forensic Science program aims to develop well-rounded forensic professionals equipped with advanced scientific knowledge, analytical skills, and ethical understanding required for effective contribution to the criminal justice system. The program offers in-depth theoretical and practical exposure to major forensic domains, including forensic biology, chemistry, toxicology, physics, digital forensics, questioned documents, and crime scene investigation. It emphasizes hands-on laboratory competence, crime scene management, modern analytical techniques, research skills, and awareness of legal and ethical responsibilities in forensic practice. Through interdisciplinary learning and professional training, the program prepares students for careers in forensic laboratories, law enforcement agencies, research institutions, industry, and academia.

By the end of this program, students will be able to:

- Demonstrate advanced understanding of core and applied forensic science principles and methodologies.
- Apply modern analytical techniques and instrumentation for accurate forensic examination of physical and digital evidence.
- Efficiently manage crime scenes, including documentation, collection, preservation, and maintenance of the chain of custody.
- Conduct independent research, analyze scientific data, and present findings professionally.
- Provide scientifically sound expert opinions and effectively communicate evidence in investigative and courtroom settings.
- Adhere to ethical, legal, and professional standards in all aspects of forensic science practice.
- Collaborate effectively in multidisciplinary forensic investigations and contribute to developments in the field.

1.2 Program Outcomes:

The “Master of Science in Forensic Science” is a postgraduate program designed to develop highly skilled forensic professionals capable of applying scientific principles to the investigation and resolution of crimes. The program integrates advanced theoretical knowledge with hands-on laboratory training, crime scene management, research methodology, and exposure to medico-legal and judicial processes.

It emphasizes scientific rigor, ethical responsibility, technological proficiency, and interdisciplinary collaboration to prepare graduates for roles in forensic laboratories, law enforcement agencies, research organizations, and academia. The Program Outcomes (POs) reflect the knowledge, skills, and professional competencies that students are expected to achieve upon completion of the program.

Program outcomes for the M.Sc. FS program are as follows-

- **PO1: Advanced Knowledge and Understanding**

  Demonstrate a comprehensive understanding of fundamental and advanced concepts in forensic science and related scientific disciplines.
- **PO2: Critical Thinking and Analytical Ability**

  Apply critical reasoning, analytical skills, and scientific judgment to evaluate complex forensic problems and evidence.
- **PO3: Laboratory Skills and Instrumentation Competency**

  Operate, calibrate, and interpret data from modern forensic instruments and technologies with accuracy, precision, and quality assurance.
- **PO4: Crime Scene Management**

  Effectively manage crime scenes through proper documentation, collection, preservation, transportation, and reconstruction of physical and digital evidence.
- **PO5: Research and Innovation**

  Design and conduct independent research, apply appropriate methodologies, analyze data, and contribute innovative solutions to forensic science.
- **PO6: Scientific Communication**

  Communicate scientific findings clearly and effectively through written reports, oral presentations, and expert testimony suitable for investigative and judicial processes.
- **PO7: Ethical and Legal Responsibility**

  Demonstrate ethical conduct, integrity, confidentiality, and compliance with legal frameworks governing forensic science and the criminal justice system.
- **PO8: Professional Competency and Employability**

  Exhibit professionalism, discipline, and preparedness for careers in forensic laboratories, law enforcement agencies, research institutes, and academia.
- **PO9: Interdisciplinary and Collaborative Skills**

  Work effectively in multidisciplinary teams involving scientists, investigators, legal authorities, and healthcare professionals.

- **PO10: Problem-Solving and Decision-Making**

  Apply scientific reasoning, evidence-based approaches, and logical decision-making to resolve forensic challenges and investigative scenarios.

- **PO11: Lifelong Learning and Technological Adaptation**

  Demonstrate commitment to continuous learning and adaptability to evolving forensic technologies, methodologies, and legal developments.

- **PO12: Societal and Criminal Justice Contribution**

  Recognize the societal impact of forensic science and contribute responsibly to justice delivery, public safety, and community welfare.

1.3 Program Specific Outcomes:

This program integrates foundational and specialized areas of forensic science with modern analytical techniques, research skills, crime scene procedures, and legal knowledge. Emphasizing scientific accuracy, ethical integrity, and interdisciplinary collaboration, the program aims to prepare graduates for diverse roles in forensic laboratories, law enforcement agencies, research institutions, and academia. The Program Specific Outcomes (PSOs) articulate the specialized competencies, technical expertise, and applied skills that students are expected to demonstrate upon completion of the program. Program-specific outcomes for the M.SC. FS program are as follows-

- **PSO1: Application of Forensic Techniques and Methodologies**

  Apply advanced scientific techniques and discipline-specific methodologies to analyze biological, chemical, physical, digital, and trace evidence with accuracy and reliability.

- **PSO2: Crime Scene and Evidence Management Expertise**

  Demonstrate specialized skills in systematic crime scene investigation, including documentation, recovery, preservation, reconstruction, and interpretation of evidence in compliance with legal standards.

- **PSO3: Forensic Research, Innovation, and Data Interpretation**

  Conduct independent and collaborative forensic research, employ appropriate analytical tools, interpret scientific data, and contribute innovative solutions to emerging forensic challenges.

- **PSO4: Professional Practice in Legal and Investigative Frameworks**

  Provide scientifically valid expert opinions, adhere to ethical and legal responsibilities, and effectively collaborate with investigative agencies, legal authorities, and forensic laboratories.

2. Scope:

This ordinance shall apply to the program leading to the Master of Science in Forensic Sciences (M.Sc. FS).

3. Eligibility and Admission Criteria:

3.1 The candidate must have successfully completed a **Bachelor's degree in Science** of a minimum **three-year duration** (10+2+3 or equivalent) from a university or institution recognized by the UGC, AIU, or any statutory body approved by the Government of India.

3.2 The degree should be in any of the following disciplines or their equivalent:

- **B.Sc. Forensic Science**
- **B.Sc. in Physics / Chemistry / Zoology / Botany / Biotechnology / Biochemistry / Microbiology / Genetics / Anthropology / Environmental Science.**
- **Bachelor's degree in Medical Sciences / Allied & Healthcare Sciences.**
- **Any allied Life Science or Physical Science stream deemed relevant by the university.**

3.3 Candidates with a Bachelor's degree having Physics/Chemistry/Zoology/Botany as a major/core subject are strongly preferred due to the interdisciplinary scientific requirements of the program.

4. Qualifying Examination:

4.1 A candidate seeking admission to the Master of Science in Forensic Sciences program should have successfully completed a **Bachelor's degree in Science** of a minimum **three-year duration** (10+2+3 or equivalent) from a university or institution recognized by the UGC, AIU, or any statutory body approved by the Government of India.

- The candidate must possess a minimum of **50% aggregate marks** or an **equivalent CGPA** in the qualifying undergraduate examination.
- A relaxation of **5% marks** (i.e., minimum 45%) in the qualifying examination shall be granted to candidates belonging to **SC/ST/OBC (Non-Creamy Layer)/Persons with Disability (PWD)** categories, in accordance with UGC regulations and Government of India norms.

4.2 Admission to Master of Science in Forensic Sciences course will be made as per the rules prescribed by the competent authority of the university, from time to time, in following manner:

a) Direct admission based on merit of the eligible candidates
b) Based on merit in entrance test conducted by competent authority.

5. Duration of the Course:

5.1 Total duration of the M.Sc. FS. program shall be 02 years, each year comprising two semesters. Each semester shall normally have 90 working days, or as prescribed by the University from time to time.

5.2 The semester in an academic year consists of two semesters.

5.3 Odd Semester July to December.

5.4 Even Semester January to June.

5.5 The maximum period for completion of the program successfully should not exceed four years (Nx2).

6. Medium of Instruction: English

7. Attendance:

A candidate is required to obtain a minimum 75% attendance in theory, tutorials and seminars and 80% in practicals of each subject individually to be eligible to appear in the university examination. However, a relaxation may be allowed on extreme compassionate grounds by the competent authority.

8. Organization of the Program:

The degree of "Master of Science in Forensic Sciences" (M.Sc. FS.) program of the university shall be conferred on the candidates who have pursued the prescribed course of study for not less than two years and have passed the examination as prescribed under the relevant scheme.

9. Curriculum:

9.1 The 02-year curriculum has been divided into 04 semesters and shall include lectures, tutorials, practicals, seminars, projects and case studies as defined in the scheme of instructions and examinations and executive instructions issued by the University from time to time.

9.2 The curriculum will also include other co-curricular and extracurricular activities as prescribed by the University from time to time.

10. Credit System:

The Master of Science in Forensic Sciences (M.Sc. FS.) program will have a curriculum in which every Subject (Course) will be assigned certain credits reflecting its weight and contact periods, as given below:

1 hour lecture/tutorial (L) per week	1 Credit
1 Tutorial period (T) per week	1 credit
1 Practical period (P) per week	0.5 credit

In addition to theory and laboratory courses, there may be other courses such as seminar, clinical training, projects etc., which will be assigned credits as per their contributions in the program without regards to contact periods.

11. Minimum Credit Requirements:

The minimum credit required for the award of a "Master of Science in Forensic Science" (M.Sc. FS) degree is 85. This is normally divided into Theory courses, tutorials, laboratory courses, seminars and projects over the duration of four (04) semesters. The credit is distributed semester-wise as shown in the structure and syllabus manual of each program. Courses generally progress in sequences, building competencies and their positioning indicates certain academic maturity on the part of the learners. Learners are expected to follow the semester-wise schedule of courses given in the syllabus manual of the respective programs.

12. Curriculum Outline:

First Semester (00-06 months)

Subject code	Course Titles	Hours Per Week			Evaluation Scheme		Total	CR
		L	T	P	Internal	External		
MFS-101	Criminalistics & Law	2	1	-	40	60	100	3
MFS-102	Forensic Biology & Entomology	3	1	-	40	60	100	4
MFS-103	Advanced forensic Physics	2	1	-	40	60	100	3
MFS-104	Biochemical & Analytical Techniques	3	1	-	40	60	100	4
MFS-105	Recent Advancements in Forensic Science	2	1	-	40	60	100	3
MFS-106	Crime Scene Investigation-Lab	-	-	2	40	60	100	1
MFS-107	Forensic Biology & Entomology - Lab	-	-	2	40	60	100	1
MFS-108	Advanced forensic Physics-Lab	-	-	2	40	60	100	1
Total		**12**	**05**	**06**	**320**	**540**	**800**	**20**

NOTE:

Abbreviations: **L**- Lecture, **T**- Tutorials, **P**- Practical and **CR**- Credit

Second Semester (07-12 months)

Subject code	Course Titles	Hours Per Week			Evaluation Scheme		Total	CR
		L	T	P	Internal	External		
MFS-201	Dermatoglyphics & Other Impressions	2	1	-	40	60	100	3
MFS-202	Questioned Documents & Graphology	3	1	-	40	60	100	4
MFS-203	Forensic Chemistry & Explosives	2	1	-	40	60	100	3
MFS-204	Medical Jurisprudence	3	1	-	40	60	100	4
MFS-205	Forensic Psychiatry and Criminal Behaviour	2	1	-	40	60	100	3
MFS-206	Dermatoglyphics & Other Impressions-Lab	-	-	2	40	60	100	1
MFS-207	Questioned Documents & Graphology-Lab	-	-	2	40	60	100	1
MFS-208	Forensic Chemistry & Explosives-Lab	-	-	2	40	60	100	1
Total		**12**	**05**	**06**	**320**	**540**	**800**	**20**

NOTE:

Abbreviations: **L**- Lecture, **T-** Tutorials, **P-** Practical and **CR-** Credit

Third Semester (13-18 months)

Subject code	Course Titles	Hours Per Week			Evaluation Scheme		Total	CR
		L	T	P	Internal	External		
MFS-301	Advanced Forensic Toxicology	3	1	-	40	60	100	4
MFS-302	Advanced Forensic Ballistics	2	1	-	40	60	100	3
MFS-303	Advanced Digital & Cyber Forensics	3	1	-	40	60	100	4
MFS-304	Anthropology & Odontology	2	1	-	40	60	100	3
MFS-305	Research Methodology & Biostatistics	2	1	-	40	60	100	3
MFS-306	Advanced Forensic Toxicology-Lab	-	-	2	40	60	100	1
MFS-307	Advanced Forensic Ballistics-Lab	-	-	2	40	60	100	1
MFS-308	Advanced Digital & Cyber Forensics-Lab	-	-	2	40	60	100	1
Total		**12**	**05**	**06**	**320**	**540**	**800**	**20**

NOTE:

Abbreviations: **L**- Lecture, **T**- Tutorials, **P**- Practical and **CR**- Credit

Fourth Semester (19-24 months)

Subject code	Course Titles	Hours Per Week			Evaluation Scheme		Total	CR
		L	T	P	Internal	External		
MFS-401	Internship (04 weeks)	-	-	-	40	60	100	5
MFS-402	Major Project / Dissertation	-	-	-	40	60	100	20
	Total	-	-	-	**80**	**120**	**200**	**25**

NOTE:

Abbreviations: **L**- Lecture, **T**- Tutorials, **P**- Practical and **CR**- Credit

12.1 Other Details: Course/Subject codes:

M.Sc. FS. Program: In the syllabus manual of M.Sc. FS., each subject is assigned a specific code. The subject code consists of six digits. First three digits (letters) indicate the program of M.Sc. FS-. The fourth digit (number) indicates the semester of a program, and fifth and sixth digits (number) indicate the serial number of the course.

For example –

MFS-101, ***102, ***103, etc.

Where,

- First Three digits (letters) ***: indicates program name.
- Fourth digit (letter): indicates semester
- Fifth & sixth digit (number) 01/02/03/04: indicates the serial number of the course.
- The first three letters used in the coding of courses indicate the respective programs.

13. Examination / Assessment and Grading:

13.1 Components of Evaluation:

Each subject will be evaluated out of 100 marks as under:	
A. Theory Subjects:	
I. Internal Assessment (IA)	40 marks
II. End-Semester Examination (ESE)	60 marks
B. Practical Subjects including Seminar, Lab Posting, Project, etc.	
I. Internal Assessment (IA)	40 marks
II. End-Semester Examination (ESE)	60 marks

13.2 Grading of Performance:

The letter grades and their equivalent grade point applicable for undergraduate programs are given below:

Percentage of Marks Obtained	Letter	Grade Points	Performance
85.0 and above	O	10	Outstanding
80.0 – 84.9	A	9	Excellent
75.0 – 79.9	B	8	Very Good
65.0 – 74.9	C	7	Good
60.0 – 64.9	D	6	Fair
55.0 – 59.9	E	5	Average
50.0 – 54.9	P	4	Pass
Less than 50.0	F	0	Fail

13.3 Computation of semester grade point average (SGPA) and cumulative grade point average (CGPA):

SPGA is the weighted average of the grade points obtained in all courses by the student during the semester (All courses excluding English and electives).

EX. SGPA COMPUTATION

Course Number	Credit/s	Letter grade	Grade point	Credit point (Credit × grade)
1	3 (C1)	A	8 (G1)	3 × 8 =24
2	4 (C2)	B+	7 (G2)	4 × 7 =28
3	3 (C3)	B	6 (G3)	3 × 6 =18

$$\text{SGPA} = \frac{C1G1 + C2G2 + C3G3}{C1 + C2 + C3}$$

$$= \frac{70}{10} = 7 \text{ (rounded off to two decimal points)}$$

13.4 Computation of CGPA:

a) CGPA is calculated with SGPA for all semesters to two decimal points and is indicated in final grade in marks card/transcript showing grades of all 8 semesters and their courses/subjects.
b) CGPA reflects the failed status in case of fail until the course/s are passed.

Semester I	Semester 2	Semester 3	Semester 4
Credit – Cr: 20	Cr: 22	Cr: 25	Cr: 26
SGPA: 6.5	SGPA: 7.0	SGPA: 5.5	SGPA: 6.0
Cr × SGPA = 20 × 6.5			

$$\text{CGPA} = \frac{20 \times 6.5 + 22 \times 7 + 25 \times 5.5 + 26 \times 6}{93}$$

$$= \frac{577.5}{93} = 6.2$$

14. Schedule of Examination:

On completion of each semester, a university examination will be conducted. Theory examinations will be of 3 hours as per the university schedule, followed by a practical examination.

14.1 Supplementary Examination:

Supplementary Examination will be held along with the forthcoming odd/even semester examination as applicable.

14.2 Internal Assessment (IA):

It shall be based on evaluation of periodic tests, assignments, clinical presentations, Viva, etc. Regular periodic examinations will be conducted throughout the course. There will be a minimum of two (2) internal examinations.

The break-up of IA (40 Marks) shall be as follows:

Theory Subjects:	
I. Average of Two Internal Examination	30 Marks
II. Teacher's Assessment	
a. Tutorial /Assignment /Quizzes	05 Marks
b. Attendance	05 Marks
Practical Subjects:	
I. One Mid-term viva –voce /tests	30 Marks
II. Teacher Assessment	
a. Lab Record	05 Marks
b. Attendance	05 Marks

a) Internal assessment of the subject shall be added to compute subject percentage.
b) The students may improve their internals assessment by appearing for "Improvement Sessional Examination.

15. Qualifying Standards:

15.1 Marks obtained in the internal assessment of the Theory and Practical will be merged with the theory & practical marks of the University examination.

15.2 In an individual subject, the minimum pass marks (including internal assessment) shall be 50% in theory and 50% in practical separately. The marks obtained in the University Examination and in the internal assessment of the subject shall be added to compute the subject percentage.

16. Promotional Rules:

16.1 A student shall be declared "pass" in a semester when he/she passes in all the theory and practical subjects.

16.2 A student failing to satisfy the passing standards of one or more subjects in the semester shall be permitted to pursue the course in the next semester and clear the back paper in the subsequent odd/even semester examination.

16.3 Students shall be allowed to keep the term for the last semester if she/he pass in all heads of the previous semester, i.e. Semester I, Semester II, Semester III, and Semester IV and so on.

16.4 A student shall be eligible to undertake an internship only when he/ she has cleared all the subjects of all the final and pre-final semesters.

17 Grace Mark:

A student can be awarded 'Grace Marks' not exceeding a maximum of 05 marks either in theory or practical, in not more than two subjects. The grace marks shall not be added to the aggregate marks.

18 Declaration of Result:

In an individual subject, the minimum pass marks (including internal assessment) shall be 50% in theory and 50% in practical separately. The marks obtained in the University Examination and in the internal assessment of the subject shall be added to compute the subject percentage.

19 Award of Division:

19.1 His/her division shall be awarded on the basis of all semester results.

19.2 If a candidate passes all examinations in the first attempt without grace and secures 75% or more marks, he/she shall be placed in 'First Division with Honour'.

19.3 If a candidate passes all examinations on the first attempt and secures 60% or more marks, he/she shall be placed in First Division.

20 Award of Rank:

On the basis of Final year result, the top three candidates shall be awarded rank according to their merit provided they pass all examinations in first attempt.

21 Award of Degree:

The student shall be eligible for the award of Master of Science in Forensic Sciences (M.Sc. FS) degree on successful completion of the prescribed course of study, i.e. he/ she must have been declared "pass" in the result.

22 Scrutiny and Re-evaluation:

Scrutiny and re-evaluation shall be as per university regulations.

23 Unfair means:

All cases regarding the reported use of unfair means will be disposed of as per university regulations.

24 Cancellation of admission:

The admission of a student at any stage of study shall be cancelled if he/she is not found qualified as per norms and guidelines or the eligibility criteria prescribed by the University.

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T.S. MISHRA UNIVERSITY

T.S. MISRA COLLEGE OF ALLIED AND HEALTHCARE SCIENCES

DEPARTMENT OF FORENSIC SCIENCE

MASTER OF SCIENCE IN FORENSIC SCIENCE (M.Sc. FS.)

SYLLABUS

YEAR/ SEMESTER: I/I

T.S. Misra College of Allied And Healthcare Sciences
Department of Forensic Science

Study and Evaluation Scheme

Program: Master of Science in Forensic Sciences (M.Sc. FS) **Semester**- I

Sr. No.	Course code	Course Title	Type of Paper	Period Per hr/week/sem.			Evaluation Scheme				Sub. Total	Credit	Total Credits
				L	T	P	CT	TA	Total	ESE			
THEORIES													
1.	MFS-101	Criminalistics & Law	Core	2	1	0	30	10	40	60	100	2:1:0	3
2.	MFS-102	Forensic Biology & Entomology	Core	3	1	0	30	10	40	60	100	3:1:0	4
3.	MFS-103	Advanced forensic Physics	Core	2	1	0	30	10	40	60	100	2:1:0	3
4.	MFS-104	Biochemical & Analytical Techniques	Core	3	1	0	30	10	40	60	100	3:1:0	4
5.	MFS-105	Recent Advancements in Forensic Science	Core	2	1	0	30	10	40	60	100	2:1:0	3
PRACTICAL													
1.	MFS-106	Crime Scene Investigation-Lab	Core	0	0	2	30	10	40	60	100	0:0:1	1
2.	MFS-107	Forensic Biology & Entomology - Lab	Core	0	0	2	30	10	40	60	100	0:0:1	1
3.	MFS-108	Advanced forensic Physics-Lab	Core	0	0	2	30	10	40	60	100	0:0:1	1
Total				**12**	**05**	**06**	**320**			**540**	**800**	**20**	**20**

Sr. No.	Course Code	Course Title	Type of Paper	Attributes							United Nation Sustainable Development Goal (SDGs)
				Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
THEORIES											
1.	MFS-101	Criminalistics & Law	Core	√	√	√	√		√	√	3,4
2.	MFS-102	Forensic Biology & Entomology	Core	√	√	√			√	√	3,4
3.	MFS-103	Advanced forensic Physics	Core	√	√	√			√	√	3,4
4.	MFS-104	Biochemical & Analytical Techniques	Core	√	√	√			√	√	3,4
5.	MFS-105	Recent Advancements in Forensic Science	Core	√	√	√			√	√	3,4
PRACTICAL											
1.	MFS-106	Crime Scene Investigation-Lab	Core	√	√	√			√	√	3,4
2.	MFS-107	Forensic Biology & Entomology - Lab	Core	√	√	√			√	√	3,4
3.	MFS-108	Advanced forensic Physics-Lab	Core	√	√	√			√	√	3,4

NOTE:

Abbreviations:

L- Lecture**, T-** Tutorials**, P-** Practical, **CT:** Class Test, **TA:** Teacher Assessment, **ESE:** End Semester Examination, **Sessional Total:** Class Test + Teacher Assessment, **Subject Total:** Sessional Total + End Semester Examination (ESE).

Effective from Session: 2026-27							
Course Code	**MFS-101**	**Title of the Course**	**Criminalistics & Law**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	I	**2**	**1**	**0**	**3**
Pre-Requisite	Nil	**Co-requisite**	Nil				
Course Objectives	The main objective of the course is to impart foundational knowledge of criminalistics integrated with legal procedures for effective crime investigation and judicial processes.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Explain the principles, development, and role of forensic science and investigators in crime scene management and courts.
CO2	Apply standard crime scene investigation methods for recognition, documentation, collection, preservation, and reconstruction of evidence.
CO3	Analyze different types of physical and biological evidence and demonstrate appropriate handling and forwarding procedures.
CO4	Interpret the structure of the Indian Criminal Justice System and relevant provisions of BNS, BNSS, BSA, and special Acts.
CO5	Prepare forensic reports and demonstrate courtroom procedures, including expert testimony and ethical conduct.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Criminalistics**	Introduction, History, and development of Forensic Science, Basic principles and significance, Organizational structure of Forensic Science Laboratories, Utilization of Forensic Science at the crime scene and in the court, Role, qualities and importance of an Investigating Officer and a Forensic Scientist at the scene of crime.	8	CO1
2	**Crime Scene Investigation**	Definition and causation of crime, Types of crime scene, recognition and protection of crime scene, recognition of evidence, searching methods, documentation (Note Taking, Videography, Photography and Sketching Methods), Collection and Preservation of evidence, Forwarding, Chain of Custody and presentation in the court processing. Reconstruction of the crime scene.	8	CO2
3	**Physical Evidences**	Definition, types and importance of physical evidences, Blood splattering analysis; Collection, preservation, packing and forwarding of different types of evidence such as- Blood, Semen, and Other Biological Stains, Firearm Exhibits, Documents, Fingerprints, Viscera, Hair & Fiber, Glass, Soil and Dust, Petroleum Products, Drugs, and Poisons, etc. to the laboratories.	8	CO3
4	**Criminal Justice System**	Historical overview and structure of the police system in India, Prosecution & Judicial Organizations, and hierarchy & power of the courts in India. Introduction of BNS - various sections related to Homicidal cases and sexual assault, BNSS- FIR, Magistrate Inquest, Section 291, 292 & 293, BSA – Introduction and Sections 26(A),32,39, 45, 46, 47, 57, 58, 60, 73, 147,148,149 & 159. Explosive Act, Narcotic Act, NDPS Act and Cyber law, Drugs and Cosmetics Act, Excise Act, case study.	8	CO4
5	**Report Writing and Court Proceedings**	Components of reports and Report formats in respect of Crime Scene and Laboratory findings. Court Testimony - admissibility of expert testimony, per Court preparations & Court appearance, Examination in chief, cross-examination, and re-examination, Ethics in Forensic Science.	8	CO5

Reference Books:

1. **Saferstein, R.** – *Criminalistics: An Introduction to Forensic Science*, Pearson Education.
2. **James, S. H., Nordby, J. J.** – *Forensic Science: An Introduction to Scientific and Investigative Techniques*, CRC Press.
3. **Kaur, K., & Rao, P. S.** – *Criminalistics and Forensic Science*, Selective & Scientific Books.
4. **Pillay, V. V.** – *Textbook of Forensic Medicine and Toxicology*, Paras Medical Publisher.

e-Learning Source:

1. https://youtu.be/HvYXFNPW3KA?si=P22CojrPvSAsIVhG
2. https://youtu.be/H54DpqPIyFg?si=5996pFqEA2POItYo

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)															
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO1	3	2	3	2	3	3	2	3	3	2	3	3	3	2	3	2
CO2	3	3	2	3	3	2	3	2	3	3	3	2	2	3	3	2
CO3	3	3	3	2	3	3	3	3	3	3	2	2	3	2	3	3
CO4	3	3	2	3	3	3	3	3	2	3	3	3	3	3	2	3
CO5	3	2	3	3	3	2	3	3	2	3	2	3	2	3	3	3

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-101	**Criminalistics & Law**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√	√		√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-102**	**Title of the Course**	**Forensic Biology & Entomology**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**I**	**3**	**1**	**0**	**4**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective is to develop scientific competence in the examination, analysis, and interpretation of biological evidence for forensic investigations.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Apply biological and serological techniques to identify and interpret body fluids, hair, and fiber evidence.
CO2	Analyze and interpret DNA profiles for individualization and kinship determination using validated forensic methods.
CO3	Determine the species origin of biological materials using classical and molecular forensic techniques.
CO4	Evaluate botanical and wildlife evidence for species identification and legal enforcement in forensic investigations.
CO5	Estimate post-mortem interval and interpret insect evidence in medicolegal investigations.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Forensic Biology & Serology**	Forensic identification and significance of biological fluids—blood, semen, saliva, sweat, urine, and faecal matter. Biological characteristics of blood and spermatozoa. Presumptive and confirmatory tests for blood, semen saliva anu urine. Identification and characteristics of saliva and other body fluids. Hair and fiber evidence: morphology and biochemistry of human and animal hair, growth cycle, and microscopic examination. Determination of species, origin, race, sex, and body site using hair evidence.	8	CO1
2	**Forensic DNA Profiling**	Structure and organization of DNA and chromosomes. Sources of forensic DNA and types of biological samples. DNA extraction, quantification, and quality assessment. PCR principles and amplification. STRs, autosomal STRs, Y-STRs, mtDNA, and SNPs. Electrophoresis and DNA profiling methods. Interpretation of DNA profiles, mixture analysis, and statistical evaluation. DNA databases, paternity and kinship analysis. Quality assurance, contamination control, and ethical and legal aspects of DNA technology.	8	CO2
3	**Determination of Origin of Species**	Concept of species and biological classification. Differences between human and non-human biological materials. Species identification from blood, hair, bone, teeth, tissues, and biological traces. Immunological methods, including the precipitin test. Microscopic, biochemical, and molecular approaches for species determination. DNA-based species identification and its forensic relevance. Limitations and evidentiary value of species origin determination in forensic casework.	8	CO3
4	**Forensic Botany & Wildlife Forensics**	Forensic botany: plant morphology and anatomy, pollen, spores, phytoliths, diatoms, wood, timber, seeds, leaves, fruits, and plant fibers. Role of botanical evidence in crime scene reconstruction. Poisonous plants and plant toxins of forensic importance. Wildlife forensics: biodiversity and wildlife crime, identification of animal hair, bones, horns, tusks, feathers, skins, and ivory. Morphological and DNA-based methods for wildlife species identification. CITES, Indian wildlife protection laws, and the role of forensic science in wildlife conservation.	8	CO4
5	**Forensic Entomology**	Introduction and scope of forensic entomology. Classification and biology of forensically important insects. Insect succession on decomposing remains. Life cycle studies and estimation of post-mortem interval (PMI). Collection, preservation, and rearing of insect evidence. Entomotoxicology and effects of drugs and poisons on insect development. Influence of environmental factors on insect activity. Applications, limitations, and case studies in forensic entomology.	8	CO5

Reference Books:

1. Saferstein, R. **Forensic Science: From the Crime Scene to the Crime Lab.** Pearson Education.
2. Butler, J.M. **Advanced Topics in Forensic DNA Typing: Methodology.** Academic Press.
3. James, S.H., Nordby, J.J. **Forensic Science: An Introduction to Scientific and Investigative Techniques.** CRC Press.
4. Byrd, J.H., Castner, J.L. **Forensic Entomology: The Utility of Arthropods in Legal Investigations.** CRC Press.

e-Learning Source:

1.
2.
3.

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	3	2	3	2	1	3	1	2	3	2	3	2	1	2	2
CO2	1	3	2	3	2	2	3	2	3	3	3	2	2	3	3	2	3
CO3	2	2	3	2	2	3	3	2	3	3	2	2	1	1	3	1	2
CO4	3	3	2	3	1	3	3	3	2	3	3	1	3	3	2	3	3
CO5	2	2	2	1	2	2	1	3	2	1	2	3	2	3	2	2	2

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
MFS-102	**Forensic Biology & Entomology**	√	√	√			√	√	3,4

Effective from Session: 2026-27							
Course Code	**MFS-103**	**Title of the Course**	**Advanced forensic Physics**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**I**	**2**	**1**	**0**	**3**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective is to develop the ability to scientifically examine, analyze, and interpret physical trace evidence for forensic investigation and court presentation.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Analyze glass evidence using fracture patterns and physical–chemical properties to interpret forensic significance.
CO2	Examine soil samples using physical, microscopic, and elemental analyses to evaluate evidentiary value.
CO3	Apply chemical and instrumental techniques to identify and interpret paint evidence.
CO4	Assess building materials to detect adulteration and draw forensic conclusions.
CO5	Evaluate tool marks and restored marks to establish class and individual characteristics.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Glass Evidence & Its Forensic Examination**	Types of glass and their composition, forensic examination of glass fractures under different conditions, determination of direction of impact cone fracture, rib marks hackle marks, backward fragmentation, color and fluorescence, physical matching, density comparison, physical measurements, refractive index by refract meter, elemental analysis, interpretation of glass evidence.	8	CO1
2	**Soil Evidence & Its Forensic Examination**	Soil: Formation and types of soil, composition and color of soil, particle size distribution, turbidity test, microscopic examination density gradient analysis, ignition test, differential thermal analysis, elemental analysis, interpretation of solid evidence, discussion on important case studies of glass & soil	8	CO2
3	**Paint Evidence & Its Forensic Examination**	Paint: - Introduction, types, and their composition, macroscopic & microscopic studies, pigment distribution micro-chemical analysis solubility test, pyrolysis chromatographic techniques, TLC, Colorimetry, IR spectroscopy & X-ray diffraction elemental analysis, interpretation of paint evidence. Forensic importance of paint evidence	8	CO3
4	**Building material Evidence & Its Forensic Examination**	Building material: - Types of cement and their composition, determination of adulterants by physical, chemical and instrumental methods, examination of brick, analysis of Bitumen & road materials, analysis of cement mortar and cement concrete & stones, forensic examination of electrical appliances installations.	8	CO4
5	**Tool marks Evidence & Its Forensic Examination**	Tool marks: - Types of tool marks: compression marks, striated marks, a combination of compression and striated marks, repeated marks, class characteristics and individual characteristics, tracing and lifting of marks, photographic examination of tool marks and cut marks on clothes and walls etc. Restoration of erased / obliterated marks: - method of making cast, punch, engrave, methods of obliteration, method of restoration etching (etching for different metals), magnetic, electrolytic etc., recording of restored marks restoration of marks on wood, leather, polymer etc.	8	CO5

Reference Books:

1. B. Caddy, Forensic Examination of glass and paints analysis and interpretation, ISBN 078405749 2001
2. C.E. O 'Hara and J.W. Osterburg, An Introduction to Criminalistic, Indiana University Press, Blomington, 1972
3. Denis Shaw, Physics in the Prevention and Detection of Crime, Contem Phys. Vol.17, 1976
4. Carper, K. (ed.), Forensic Engineering, 2ndEdn. CRC Press, Bocarida, Florida, 2001

e-Learning Source:

1. https://youtu.be/VWLR2D8N0_E?si=hP3RIuB08pMt3XhR
2. https://youtu.be/3mQaTTy0aHY?si=VvBtOCwQ0qK-bdFY
3. https://youtu.be/hwMX6dXFLX4?si=kPqrbMS2dsNfLtfj

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	2	3	2	1	3	1	2	3	2	1	2	1	2	2
CO2	1	3	2	1	2	3	3	2	3	3	3	2	2	3	3	2	3
CO3	2	2	3	2	2	2	1	2	3	3	2	2	1	1	3	1	1
CO4	2	3	2	2	3	3	2	3	2	3	3	1	3	3	2	3	3
CO5	2	2	2	1	2	2	1	2	2	1	2	3	2	3	2	2	2

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-103	**Advanced forensic Physics**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-104**	**Title of the Course**	**Biochemical & Analytical Techniques**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**I**	**3**	**1**	**0**	**4**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective is to provide fundamental knowledge and practical understanding of biochemical, immunological, molecular, and analytical techniques used in biological and forensic investigations.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Apply biochemical principles, centrifugation, and microscopy techniques to analyze biological samples.
CO2	Explain immunochemical reactions and apply chromatographic methods for biological separation and analysis.
CO3	Analyze biomolecules using electrophoretic and mass spectrometric techniques for structural interpretation.
CO4	Apply molecular biology tools to isolate and manipulate nucleic acids and genes.
CO5	Use qualitative and quantitative analytical methods to evaluate chemical and biological samples.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Biochemical Analysis and Techniques**	**General Principles of Biological / Biochemical Analysis: -** pH and buffers Physiological solution, Cell and tissue culture, Cell fractionation, biological variations etc. **Centrifugation Techniques: -** Basic principles of sedimentation, various types of centrifuges, Density gradient centrifugation, Preparative centrifugation, Analysis of sub-cellular fractions, Ultra- centrifuge-Refrigerated Centrifuges. **Microscopy: -** Basic Principles, simple and compound microscope, comparison microscope, phase contrast Microscope, Stereoscopy microscope, Polarizing microscope, Fluorescent Microscopy, infra-red Microscopy, Scanning electron Microscope (SEM) & Transmission Electron Microscope (TEM).	8	CO1
2	**Immunochemical and Chromatographic Techniques**	**Immuno-chemical Technique: -** General principles, production of antibodies, Precipitin reaction, Gel Immuno-diffusion, Immuno- electrophoresis, complement fixation, Radio Immuno Assay (RIA), ELISA, Fluorescence immune assay. **Chromatographic Techniques: -** General Principles, Paper chromatography, column chromatography, TLC, Absorption chromatography, Partition chromatography, Gas chromatography, Gas-liquid chromatography, Ion exchange chromatography, Exclusion (permeation) chromatography, Affinity chromatography, HPLC, HPTLC, Capillary chromatography, Interfacing GC with IR spectrometry.	8	CO2
3	**Electrophoresis and Mass Spectrometry**	**Electrophoretic Technique: -** General principles, Factors affecting electrophoresis, Law voltage thin sheet electrophoresis, High voltage electrophoresis, Sodium dodecyl-sulphate (SDS) Polyacrylamide gel electrophoresis, Iso-electric focusing (IEF), Iso-electrophoresis, Preparative electrophoresis, Horizontal and Vertical electrophoresis. **Mass Spectrometry: -** Introduction, Principle, Instrumentation, Data handling, Correlation of mass spectra and molecular structure, Fourier transform mass spectrometry, Introduction to Tandem mass spectrometry, inductively coupled plasma MS (ICP-MS), Ion Microprobe Mass Analyzer (IMMA), HR GCMS, LCMS, Secondary Mass Spectroscopy, Laser Mass spectrometry-LCMS, ESI-MS	8	CO3
4	**Molecular Biology Techniques**	Outline of Genetic Manipulations, Enzymes and in genetic manipulation, Cloning procedures, Isolation of specific nucleic acid sequences – complementary DNA, Gene libraries, Colony hybridization, Nick translation, Oligo nucleotide probes, Expression of genes.	8	CO4
5	**Analytical Techniques**	Basic concepts in analytical methods qualitative and quantitative methods Volumetric gravimetric electrometric, potentiometric, chromatographic methods Calorimetric, spectrophotometric, spectroscopic techniques	8	CO5

Reference Books:

1. Chapmen, J.R., Practical Organic Mass spectrometry, A Guide for Chemical and Biochemical Analysis, Wiley, New York, 1993.
2. Lide, D.R., Handbook of Chemistry & Physics C.R.C. 75th ed. CRC Press Washington D.C., 1994
3. Stout G.H., &Jensten, L.H., X-ray Structure Determination – A practical Guide, 2nd Ed., Wiley, New York, 1989
4. Willard, H.H. et al, Instrumental Methods of Analysis, CBS Publishers and Distributors, Delhi 1986
5. Sneddon, J., Advances in Atomic Spectroscopy, Vol. I & II, JNI Press 1992 & 1994

e-Learning Source:

1. https://youtu.be/iHrKsfw827c
2. https://youtu.be/u_hz7_KN7hE

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	2	3	2	2	3	1	2	3	2	3	2	3	2	2
CO2	2	3	2	1	2	3	3	2	3	3	3	3	2	3	3	2	3
CO3	3	2	3	2	2	2	3	2	3	2	2	2	2	3	2	3	2
CO4	2	3	2	2	3	3	2	3	2	3	3	3	3	3	2	3	3
CO5	3	2	2	3	2	2	3	3	2	3	2	3	2	3	2	2	2

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-104	**Biochemical & Analytical Techniques**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√	√		√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-105**	**Title of the Course**	**Recent Advancements in Forensic Science**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**I**	**2**	**1**	**0**	**3**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective is to provide students with a comprehensive understanding of cutting-edge technologies and modern analytical methodologies used to solve complex criminal and civil investigations.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Describe the principles and applications of biometrics and digital image processing.
CO2	Identify the causes and characteristics of material and structural engineering failures.
CO3	Relate nanotechnology applications to the enhancement of trace evidence analysis.
CO4	Assess the utility of advanced psychological and digital tools in criminal profiling.
CO5	Select appropriate high-tech analytical methods for specialized forensic investigations.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Pattern Recognition & Biometrics**	Pattern Recognition & Biometrics- Introduction to Biometrics, Pattern Recognition & Biometrics and its types – Face, Iris & retinal imaging, finger and palm print, Computer simulation, Image processing – Image capturing, Image restoration & enhancement. Image editing, Compression Technique – Proactive Forensic science, User Acceptance, Evaluating Accuracy, Advantages &disadvantages.	8	CO1
2	**Forensic Engineering**	Forensic Engineering- Definition, causes, types of Failures, Ductile and Brittle Fracture, Fatigue Fracture, Distortion Failures, Wear Failures, Fretting Failures, Liquid Erosion Failures, Stress Corrosion Cracking, Liquid Metal Embrittlement, Hydrogen Embrittlement, Elevated Temperature Failures, Failures Related to Corrosion, Failures of Metallic Orthopedics Implant, Nuclear Failures. Investigation of electrical failures/accidents, Seeking defects in material evidences, Failure of Polymer materials.	8	CO2
3	**Forensic Nanotechnology**	Forensic Nanotechnology- Definition, Introduction, Scope and Application of nanotechnology, Application of nanotechnology in forensic science such as in fingerprint development, in Military such as explosives detection, GSR analysis, DNA, Narcotics and Drugs testing.	8	CO3
4	**Advanced Tools and Techniques in Forensic Science**	Advanced Tools and Techniques in Forensic Science- Portrait parley method, Narcoanalysis, Brain Mapping, Polygraphy, Ballistic Fingerprinting, Binocular for identifying dangerous gases, Remote personal assessment, super imposition technique, Fire technology, 3D Scanner, High speed ballistics photography, Forensic carbon-14 Dating.	8	CO4
5	**Application of advanced technology in forensic investigation**	Definition, Concept and application of Alternative light photography, LA-ICP-MS, Digital surveillance for gaming equipment in forensic investigation. One research article.	8	CO5

Reference Books:

1. Biometrics: Theory, Methods, and Applications, N. V. Boulgouris, Konstantinos N. Plataniotis, EvangeliaMicheli-Tzanakou, 2010
2. New perspective of nanotechnology: role in preventive forensic Alok Pandya1 and Ritesh K Shukla, Egyptian Journal of Forensic Sciences, 1-11, (2018) 8:57
3. BernadJahne: Digital Image processing, Springer Verlag (1993)

e-Learning Source:

1. https://youtu.be/FZz2QPhV5M8
2. https://youtu.be/VjHObyoNU2U
3. https://youtu.be/JsDY4x7aJO8

Course Articulation Matrix: (Mapping of COs with POs and PSOs)

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	1	2	3	2	2	3	3	3	2	2	2	2	1	2	2
CO2	2	2	2	2	2	3	1	2	3	3	3	3	2	2	3	2	3
CO3	2	3	3	2	2	2	3	2	1	2	2	2	1	3	2	1	2
CO4	3	3	2	1	3	1	2	3	2	3	3	3	3	2	2	3	3
CO5	2	2	2	3	2	2	3	3	2	3	2	3	2	3	2	2	2

2- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-105	**Recent Advancements in Forensic Science**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-106**	**Title of the Course**	**Crime Scene Investigation-Lab**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**I**	**0**	**0**	**2**	**1**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective of this course is to provide students with hands-on practical exposure to the systematic processing of a crime scene, including the identification, collection, preservation, and documentation of physical and biological evidence, and the subsequent presentation of findings in a legal context.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Demonstrate proficiency in crime scene documentation through sketching and photography.
CO2	Execute systematic search and identification of physical evidence at various crime scenes.
CO3	Apply correct protocols for the collection and preservation of biological and physical evidence.
CO4	Analyze and reconstruct crime scenes using data from mock homicide and suicide scenarios.
CO5	Present evidence effectively through expert testimony in a mock courtroom environment.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Unit-1	**1.** Demonstration of crime scene processing (Protection and Documentation- Notes, photography, videography, sketching methods).	2	CO1
		2. Identification and searching methods of physical evidences at the crime scene	2	
2	Unit-2	**3.** Collection, preservation, and packaging of physical evidences.	2	CO2
		4. Identification, collection, preservation, and packaging of biological evidences.	2	
3	Unit-3	**5.** Perform mock homicide crime scene investigation	2	CO3
		6. Perform mock suicide crime scene investigation (hanging/shot dead/poisoning etc.)	2	
4	Unit-4	**7.** Perform mock hit and run crime scene investigation.	2	CO4
		8. Reconstruction of scene of crime	2	
5	Unit-5	**9.** To perform mock court testimony of expert evidences in different types of crime.	2	CO5
		10. To demonstrate a moot courtroom testimony of expert witness.	2	

Reference Books:

1. Crime Scene Investigation Procedural Guide 1st Edition by Michael S. Maloney, Donald Housman, Ross M. Gardner
2. B.R. Sharma, Forensic Science in Criminal Investigation and Trials - Universal Law Publishing Company, 2003, ISBN 817534332X, 9788175343320
3. Fundamentals of Forensic Science 3rd Edition 2015 Max M. Houck and Jay A. Siegel.
4. James, S. H. And Nordby, J. J. (Eds) Forensic Science - An Introduction to Scientific and Investigative Techniques, CRC Press, London, 2003

e-Learning Source:

1. https://youtu.be/2QypJrAq_6A
2. https://youtu.be/wcCu2RsFAkA

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	3	2	3	2	1	3	1	2	3	2	3	2	1	2	2
CO2	1	3	2	3	2	2	3	2	3	3	3	2	2	3	3	2	3
CO3	2	2	3	2	2	3	3	2	3	3	2	2	1	1	3	1	2
CO4	3	3	2	3	1	3	3	3	2	3	3	1	3	3	2	3	3
CO5	2	2	2	1	2	2	1	3	2	1	2	3	2	3	2	2	2

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
MFS-106	**Crime Scene Investigation-Lab**	√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-107**	**Title of the Course**	**Forensic Biology & Entomology - Lab**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**I**	**0**	**0**	**2**	**1**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective of the course is to develop technical skills in biological evidence analysis, including serological testing, DNA extraction, and the morphological study of entomological and botanical samples.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Conduct presumptive and confirmatory tests to identify biological fluids like blood, semen, and saliva.
CO2	Perform DNA extraction and electrophoresis to evaluate the presence and integrity of genetic material.
CO3	Differentiate between human and animal origins using morphological and immunological methods on hair, bone, and blood.
CO4	Utilize microscopic techniques to identify pollen grains, diatoms, and plant fibers found at simulated crime scenes.
CO5	Identify the life stages of blowflies and beetles to assist in forensic entomology and post-mortem interval estimations.

Unit No.	**Title of the Unit**	**Content of Unit**	**Contact Hrs.**	**Mapped CO**
1	**Unit-1**	**1.** Performance of presumptive tests (for blood, semen saliva and urine) on various suspected stains.	2	CO1
		2. Performance of confirmatory tests (for blood, semen saliva and urine).	2	
		3. Morphological study of human vs. animal hair, including cuticle patterns, medulla types, and cortex features.	2	
2	**Unit-2**	**4.** Extraction of DNA from plant/animal cells.	2	CO2
		5. Using Agarose Gel Electrophoresis (AGE) to visualize the presence and integrity of extracted DNA.	2	
3	**Unit-3**	**6.** Species Identification via Immunological Methods: Performing the Precipitin test or Ouchterlony Double Diffusion to differentiate between human and non-human blood.	2	CO3
		7. Osteological Comparison: Morphological study of human bones versus animal bones (e.g., skull, femur, or teeth) to determine origin.	2	
4	**Unit-4**	**8.** Microscopic study of pollen grains and plant fibers found at a simulated crime scene.	2	CO4
		9. Microscopic study of diatoms (from water samples).	2	
5	**Unit-5**	**10.** Collection, preservation, and morphological identification of various stages (egg, larva, pupa, adult) of blowflies and beetles.	2	CO5

Reference Books:

1. Saferstein, R. **Forensic Science: From the Crime Scene to the Crime Lab.** Pearson Education.
2. Butler, J.M. **Advanced Topics in Forensic DNA Typing: Methodology.** Academic Press.
3. James, S.H., Nordby, J.J. **Forensic Science: An Introduction to Scientific and Investigative Techniques.** CRC Press.
4. Byrd, J.H., Castner, J.L. **Forensic Entomology: The Utility of Arthropods in Legal Investigations.** CRC Press.

e-Learning Source:

1. https://youtu.be/I-cUwz451YI?si=uvXt8IE3q9WEcjeN
2. https://youtu.be/615S75muHss?si=h67kqR0JYQH_J95m
3. https://youtu.be/alLVW2RVpHc?si=-KPfBQYAgrlM_C5I
4. https://youtu.be/Nr6d7Z7EPu8?si=SXFpkWCCaW4vCkU6

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	2	3	2	1	3	1	2	3	2	1	2	1	2	2
CO2	1	3	2	1	2	3	3	2	3	3	3	2	2	3	3	2	3
CO3	2	2	3	2	2	2	1	2	3	3	2	2	1	1	3	1	1
CO4	2	3	2	2	3	3	2	3	2	3	3	1	3	3	2	3	3
CO5	2	2	2	1	2	2	1	2	2	1	2	3	2	3	2	2	2

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	**Course Title**	**Attributes**							**SDGs No.**
MFS-107		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√				√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-108**	**Title of the Course**	**Advanced forensic Physics-Lab**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**I**	**0**	**0**	**2**	**1**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective of the course is to develop hands-on competency in the scientific examination, analysis, comparison, and interpretation of physical evidence using standard forensic laboratory techniques.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Apply laboratory techniques to examine, analyze, and compare glass evidence for forensic interpretation.
CO2	Examine and differentiate soil samples using physical and refractive index methods for evidentiary comparison.
CO3	Analyze paint evidence through preliminary and microscopic examinations to establish forensic significance.
CO4	Evaluate building material evidence, particularly cement samples, using systematic forensic examination methods.
CO5	Examine, compare, and restore tool marks on different surfaces to support forensic reconstruction.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Glass Evidence & Its Forensic Examination**	Preliminary examination of the glass evidence.	2	CO1
		Examination of glass fracture.	2	
		To compare glass samples by the refractive index method.	2	
2	**Soil Evidence & Its Forensic Examination**	Preliminary examination of Soil evidences.	2	CO2
		To compare soil samples by the refractive index method.	2	
3	**Paint Evidence & Its Forensic Examination**	Preliminary examination of paint evidence.	2	CO3
		Microscopic analysis of paint/ paint chips.	2	
4	**Building material Evidence & Its Forensic Examination**	Examination of the cement sample.	2	CO4
5	**Tool marks Evidence & Its Forensic Examination**	Examination and comparison of tool marks on different surfaces	2	CO5
		Restoration of erased or obliterated marks on different surfaces.	2	

Reference Books:

1. B. Caddy, Forensic Examination of glass and paints analysis and interpretation, ISBN 078405749 2001
2. C.E. O 'Hara and J.W. Osterburg, An Introduction to Criminalistic, Indiana University Press, Blomington, 1972
3. Denis Shaw, Physics in the Prevention and Detection of Crime, Contem Phys. Vol.17, 1976
4. James, S.H. and Nordby, J.J. Eds., Forensic Science An Introduction to Scientific and Investigative Techniques, CRC Press, London, 2003

e-Learning Source:

1. https://youtu.be/yHkhju99CZM
2. https://youtu.be/LpndOfsq_6M

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	1	2	3	2	2	3	3	3	2	2	2	2	1	2	2
CO2	2	2	2	2	2	3	1	2	3	3	3	3	2	2	3	2	3
CO3	2	3	3	2	2	2	3	2	1	2	2	2	1	3	2	1	2
CO4	3	3	2	1	3	1	2	3	2	3	3	3	3	2	2	3	3
CO5	2	2	2	3	2	2	3	3	2	3	2	3	2	3	2	2	2

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-108		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√				√	**3,4**

T.S. MISRA COLLEGE OF ALLIED AND HEALTHCARE SCIENCES

DEPARTMENT OF FORENSIC SCIENCE

MASTER OF SCIENCE IN FORENSIC SCIENCE (M.Sc. FS)

SYLLABUS

YEAR/ SEMESTER: I/II

T.S. Misra College of Allied And Healthcare Sciences
Department of Forensic Science

Study and Evaluation Scheme

Program: Master of Science in Forensic Sciences (M.Sc. FS) **Semester**- II

Sr. No.	Course code	Course Title	Type of Paper	Period Per hr/week/sem.			Evaluation Scheme				Sub. Total	Credit	Total Credits
				L	T	P	CT	TA	Total	ESE			
THEORIES													
1.	MFS-201	Dermatoglyphics & Other Impressions	Core	2	1	0	30	10	40	60	100	2:1:0	3
2.	MFS-202	Questioned Documents & Graphology	Core	3	1	0	30	10	40	60	100	3:1:0	4
3.	MFS-203	Forensic Chemistry & Explosives	Core	2	1	0	30	10	40	60	100	2:1:0	3
4.	MFS-204	Medical Jurisprudence	Core	3	1	0	30	10	40	60	100	3:1:0	4
5.	MFS-205	Forensic Psychiatry and Criminal Behaviour	Core	2	1	0	30	10	40	60	100	2:1:0	3
PRACTICAL													
1.	MFS-206	Dermatoglyphics & Other Impressions-Lab	Core	0	0	2	30	10	40	60	100	0:0:1	1
2.	MFS-207	Questioned Documents & Graphology-Lab	Core	0	0	2	30	10	40	60	100	0:0:1	1
3.	MFS-208	Forensic Chemistry & Explosives-Lab	Core	0	0	2	30	10	40	60	100	0:0:1	1
Total				**11**	**05**	**08**	**360**			**540**	**900**	**20**	**20**

Sr. No.	Course Code	Course Title	Type of Paper	Attributes							United Nation Sustainable Development Goal (SDGs)
				Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
THEORIES											
1.	MFS-201	Dermatoglyphics & Other Impressions	Core	√	√	√	√		√	√	3,4
2.	MFS-202	Questioned Documents & Graphology	Core	√	√	√			√	√	3,4
3.	MFS-203	Forensic Chemistry & Explosives	Core	√	√	√			√	√	3,4
4.	MFS-204	Medical Jurisprudence	Core	√	√	√			√	√	3,4
5.	MFS-205	Forensic Psychiatry and Criminal Behaviour	Core	√	√	√			√	√	3,4
PRACTICAL											
1.	MFS-206	Dermatoglyphics & Other Impressions-Lab	Core	√	√	√			√	√	3,4
2.	MFS-207	Questioned Documents & Graphology-Lab	Core	√	√	√			√	√	3,4
3.	MFS-208	Forensic Chemistry & Explosives-Lab	Core	√	√	√			√	√	3,4

NOTE:

Abbreviations:

L- Lecture**, T-** Tutorials**, P-** Practical, **CT:** Class Test, **TA:** Teacher Assessment, **ESE:** End Semester Examination, **Sessional Total:** Class Test + Teacher Assessment, **Subject Total:** Sessional Total + End Semester Examination (ESE).

Effective from Session: 2026-27							
Course Code	**MFS-201**	**Title of the Course**	**Dermatoglyphics & Other Impressions**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**II**	2	1	0	**3**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective is to provide a comprehensive theoretical understanding and practical insight into the formation, development, examination, and forensic comparison of fingerprints and other impression evidence.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Explain the origin, classification, and systematic identification of fingerprints using established classification systems.
CO2	Apply appropriate physical, chemical, and advanced techniques for the development and enhancement of latent fingerprints.
CO3	Examine, compare, and interpret fingerprint characteristics using manual methods and automated fingerprint identification systems.
CO4	Analyze footprints, footwear impressions, and tyre marks using standard casting, lifting, and comparison techniques.
CO5	Evaluate lip prints, ear prints, and bite marks for collection, preservation, comparison, and forensic significance.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Introduction of Fingerprints**	Introduction, history and development of fingerprints, formation of ridges, pattern types, pattern areas, classification of fingerprints – Henry system of classification, single digital classification, extension of Henry system, search of fingerprints, fingerprint bureau.	8	CO1
2	**Development of Fingerprints**	Chance fingerprints, latent & visible fingerprints, plastic fingerprints, ridge tracing and ridge counting, development of latent fingerprints, conventional methods of development of fingerprints – fluorescent method, magnetic power method, fuming method, chemical method etc. digital imaging and enhancement, application of laser and other radiations to develop latent fingerprints, metal deposition method and development of latent print on skin.	8	CO2
3	**Examination of Fingerprints**	Taking of finger prints from living and dead persons, preserving and lifting of fingerprints, photography of fingerprints, digital transmission, comparison of fingerprints, basis of comparison, class characteristics, individual characteristics, various types of ridge characteristics, automatic fingerprint identification system.	8	CO3
4	**Foot Prints**	Foot prints: - Importance, gait pattern, casting of footprints in different medium, electrostatic lifting of latent footprints, taking of control sample. Tyre marks / prints and skid marks, taking of control samples.	8	CO4
5	**Lip Prints, Ear Prints and Bite Marks**	Lip prints, Natural, location, collection and evaluation. Bite marks, Forensic significance, photography, lifting and preservation of bite marks and evaluation. Ear prints, Forensic significance, location, collection and evaluation. Taking of control samples of lip print and ear print for comparison	8	CO5

Reference Books:

1. Henry C. Lee and R. E.Gaensslen, "Advances in Fingerprint Technology", Second Edition.
2. J.E. Cowger, Friction Ridge Skin, CRC Press, Boca Raton (1983)
3. J. A., Sukoo, R. J, and Knupfer (2000), "Encyclopedia of Forensic Science", Siegel, Academic Press
4. Champod, C., Lennard, C. J., Margot, P., &Stoilovic, M. (2017). Fingerprints and other ridge skin impressions. CRC press

e-Learning Source:

1 https://youtu.be/Fn5dAM-fKDQ
2 https://youtu.be/pU_Ap4ZwBrc

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	3	3	2	2	3	3	3	2	2	3	2	3	2	2
CO2	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	2	3
CO3	2	3	2	2	2	2	3	2	3	2	2	2	3	2	3	1	2
CO4	3	3	2	2	3	3	2	3	2	2	2	3	3	2	3	3	2
CO5	2	2	2	3	2	2	3	3	2	3	2	3	3	3	3	2	2

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	**Course Title**	**Attributes**							**SDGs No.**
MFS-201	**Dermatoglyphics & Other Impressions**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-202**	**Title of the Course**	**Questioned Documents & Graphology**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**II**	3	1	0	**4**
Pre-Requisite	**Nil**	**Co-requisite**	Nil				
Course Objectives	The objective of the course is to develop theoretical understanding and analytical skills in the scientific examination, comparison, and interpretation of questioned documents, handwriting, and graphological features for forensic purposes.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Explain the nature of documents and apply principles of handwriting examination to assess general and individual writing characteristics.
CO2	Identify and examine disguised writing, anonymous letters, forged signatures, and document alterations using forensic methods.
CO3	Analyze questioned documents to detect various types of forgeries, printing methods, and counterfeit security documents.
CO4	Evaluate the age and authenticity of documents using paper, ink, printing, digital, and stylistic examination techniques.
CO5	Interpret handwriting features using graphological principles to assess personality traits and behavioral indicators.

Unit No.	**Title of the Unit**	**Content of Unit**	**Contact Hrs.**	**Mapped CO**
1	**Introduction of Documents & Handwriting Examination**	Definition, classification & types of documents, procurement of standard admitted / specimen writings, handling and marking of documents, preliminary examination of documents. Handwriting: Development and individuality of handwriting, natural variations. Various writing features and their estimation, general characteristics of handwriting, individual characteristics of handwriting, process of comparison, , basic tools needed for forensic documents examination and their use.	8	CO1
2	**Disguised writing and anonymous letters**	Identification of written documents, examination of signatures characteristics of genuine and forged signatures, examination of alterations, erasers, overwriting, additions and obliterations. Decipherment of secret, indented and charred documents, examination of seal impressions and other mechanical impressions.	8	CO2
3	**Examination of Document**	Xeroxed copies, carbon copies, fax message forgeries and their detection. Various types of forgeries and their detection. Examination of built-up documents, determination of sequence of strokes, physical matching of documents, identification of type writings, identification of printed matter, various types of printing of security documents, printing of currency notes, examination of counterfeit currency notes, passports, visa, stamp papers, postal stamps, etc.	8	CO3
4	**Determination of the Age of Documents**	Determination of the age of documents by examination of– Paper, ink and writing/signatures, etc. Examination of computer printout, identification of dot-matrix, ink-jet and laser printers, electronic typewriter, credit cards, forensic stylistics, forensic linguistics, e-documents, digital signatures.	8	CO4
5	**Basics of Graphology**	**Graphology:** Concept, definition, scope and historical development of graphology; distinction between graphology and forensic handwriting examination. Principles and assumptions of graphological analysis. Analysis and interpretation of handwriting features, including size, slant, pressure, baseline, spacing, margins, speed, rhythm, and stroke formation. Zone analysis and significance of letter forms, loops, angles, t-bars, i-dots, capitals, numerals, punctuation and signatures. Applications of graphology in personality assessment, behavioural profiling, career guidance and human resource management. Limitations, reliability issues and ethical considerations of graphology; relevance and limitations of graphology in relation to questioned document examination.	8	CO5

Reference Books:

1. Albert, S. Osborn, Questioned Documents, Second Ed., Universal Law Publishing, Delhi, 1998
2. Charles, C. Thomas, I.S.Q.D. Identification System for Questioned Documents, Billy Prior Bates, Springfield, Illinois, USA, 1971
3. Hard less, H.R., Disputed Documents, handwriting and thumbs – print identification: profusely illustrated, Low Book Co., Allahabad, 1988
4. Kurtz, Sheila, Grapholypes a new plant on handwriting analysis, Crown Publishers Inc., USA, 1983.
5. Wilson, R., Harrison, Suspect Documents – Their Scientific Examination; Universal Law Publishing, Delhi, 1997

e-Learning Source:

1. https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=eCJfy23Kjy3c0vICLa6VYg%3D%3D
2. https://youtu.be/Is6t1EP_3eg

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	2	3	2	3	3	3	3	2	2	2	2	3	3	2
CO2	3	3	3	3	3	3	3	2	3	3	3	3	2	2	3	2	3
CO3	2	3	2	3	3	2	3	2	3	2	2	2	3	3	3	3	3
CO4	3	3	3	2	2	3	2	3	3	2	3	3	3	2	3	3	2
CO5	3	3	2	3	3	2	3	3	2	3	2	3	2	3	2	2	3

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	**Course Title**	**Attributes**							**SDGs No.**
MFS-202	**Questioned Documents & Graphology**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-203**	**Title of the Course**	**Forensic Chemistry & Explosives**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**II**	**3**	**1**	**0**	**4**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective of the course is to develop conceptual understanding and analytical competence in forensic chemical analysis of substances, petroleum products, explosives, explosion phenomena, and fire–arson evidence.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Explain the principles and applications of forensic chemistry in the examination of beverages, drugs of abuse, and related chemical evidence.
CO2	Analyze petroleum products and trace chemical evidence using qualitative and quantitative forensic techniques.
CO3	Classify and examine explosives, IEDs, and pyrotechnics based on their composition, characteristics, and forensic significance.
CO4	Evaluate explosion phenomena, blast effects, and post-blast evidence to reconstruct the sequence of events at explosion scenes.
CO5	Apply laboratory and field techniques for the examination of explosives and arson evidence, including identification of fire accelerants.

Unit No.	**Title of the Unit**	**Content of Unit**	**Contact Hrs.**	**Mapped CO**
1	**Forensic Chemistry & Beverages**	Forensic Chemistry: Introduction, definition scope and significance types of cases/exhibits, preliminary screening, presumptive test, examination procedures involving standard methods and instrumental techniques, analysis. Beverages: alcoholic and non-alcoholic, country-made liquor, illicit liquor and medicinal preparations containing alcohol and drugs as constituents, drugs of abuse: introduction, classification of drugs of abuse, drug of abuse in sports, narcotics drugs and psychotropic substances, designers' drug and their forensic examination.	8	CO1
2	**Petroleum products & its Examination**	Examination of petroleum products: - Distillation and fractionation, various fractions and their commercial uses, standard methods of analysis of petroleum products for adulteration. Analysis of trace evidence: cosmetics, dyes, Trap related evidence materials Quantitative and qualitative analysis of chemical fertilizers, insecticides, metallic and non-metallic products, consumer items such as gold, silver, tobacco, tea, sugar, salts, acids, and alkalis etc.	8	CO2
3	**Explosives**	Introduction, classification, scope, significance different type of explosive, explosive composition, different characteristics of explosives. Dynamite, its classification and examination, water gel explosive, blasting agents, binary explosive, sheet explosive, plastic explosive, boosters, blasting cap, home-made bombs, explosive train, detonators and its type. Introduction, Components, Type of IEDs, (Molotov cocktail, Letter bomb, Pipe bomb, VBIED and CBRN), Explosives Initiation (Explosive Trains), IEDs explosion process and affects. Definition, composition, characteristics, and types of pyrotechnique, mechanism of firework.	8	CO3
4	**Explosion Phenomena**	Explosion phenomena, its process and effects, types of hazards, effect of blast wave on structures, human etc. specific approach to scene of explosion, post-blast residue collection, preservation, packing and forwarding. Reconstruction of sequence of events, evaluation and assessment of scene of explosion.	8	CO4
5	**Examination of Explosives and Arson**	Systematic examination of explosives and explosion residues in the laboratory using chemical and instrumental techniques and interpretation of results. Introduction to Fire & Arson, origin, cause, motives and, chemistry of Fire, Firefighting operations, preservation of fire scene, collection of evidences. Analysis of fire debris: Extraction of fire accelerants from fire debris, advantages and their limitations. Methods and techniques used in identification of fire accelerant.	8	CO5

Reference Books:

1. Richard Saferstein; Forensic Science Hand Book; Ed.; Prentice – Hall, Englewood Cliff, New jersey; (1982)
2. Dutelle, Aric W. An introduction to crime scene investigation. Jones & Bartlett Publishers, 2011

e-Learning Source:

1. https://youtu.be/tLrTITlcsQM
2. https://youtu.be/p694_czdTMY

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	3	3	2	3	3	3	3	3	2	2	3	2	3	3	2
CO2	3	3	3	2	3	3	2	2	3	3	3	3	3	2	2	3	3
CO3	3	2	3	2	3	2	3	3	2	3	2	3	3	2	2	2	3
CO4	2	3	3	3	2	3	3	3	3	3	3	2	2	2	3	3	2
CO5	2	3	2	2	3	3	3	2	3	3	2	3	3	3	2	3	3

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	**Course Title**	**Attributes**							**SDGs No.**
MFS-203	**Forensic Chemistry & Explosives**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-204**	**Title of the Course**	**Medical Jurisprudence**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**II**	**3**	**1**	**0**	**4**
Pre-Requisite	**Nil**	**Co-requisite**	Nil				
Course Objectives	The Objective of this course is to impart foundational knowledge of medico-legal principles, death investigation, injury assessment, sexual offences, and recent advancements in forensic medicine for legal and investigative applications.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Explain medico-legal procedures, personal identification methods, and the conduct of medical autopsy for forensic purposes.
CO2	Analyze the cause, manner, and time since death, including various forms of asphyxial and environmental deaths.
CO3	Examine and interpret different types of injuries with respect to their medico-legal significance.
CO4	Evaluate sexual offences, abortion, and infanticide cases through medico-legal examination and interpretation.
CO5	Describe recent advancements in forensic medicine, including virtual autopsy, forensic imaging, and modern investigative tools.

Unit No.	**Title of the Unit**	**Content of Unit**	**Contact Hrs.**	**Mapped CO**
1	**Medical Jurisprudence, Personal Identification and Medical Autopsy**	Introduction and legal procedure in India. Personal Identification: Parameters of personal Identification- race, religion, sex, age, height, stature and miscellaneous, Identification in mass disasters. Medical Autopsy- Objectives, External examination & Internal Examination, types of incisions, collection & preservation of viscera. Postmortem report.	8	CO1
2	**Death**	Definition, cause and manner of death, Diagnosis of death- somatic & molecular death. Postmortem changes- (early, intermediate, and late changes), Determination of time since death. Asphyxial Deaths: Definition, Classification of mechanical asphyxia- (hanging, strangulation, suffocation, Drowning), Death from starvation, cold and heat, anaphylatic deaths.	8	CO2
3	**Injuries**	Injury, Mechanism of injury, Types of injuries: abrasions, contusion, bruises, lacerations, incised wounds, stab wounds, defence wounds, self-inflicted wounds, medico legal aspects of injuries, ante-mortem and post-mortem injuries, aging of injury, Thermal Injuries-Burns, dowry deaths, scalds, electricity, lightning, explosions, Firearm injuries.	8	CO3
4	**Sexual Offences, Abortion & Infanticide**	Natural sexual offences- Rape, Incest, Examination of the victim, examination of the accused. Unnatural sexual offences- sodomy, Buccal Coitus, Tribadism, Bestiality. Sexual perversions- Definition and types. Abortion- Definition, classification, Examination of the woman, Examination of the aborted material, developmental stages of a foetus; Infanticide: Definition, still-born & dead born child, Postmortem examinations, Causes of death in the new born, SIDS.	8	CO4
5	**Recent Advancement in forensic medicine**	Virtual Autopsy, 3D Facial Reconstruction, Torture medicine, Forensic Radiology & Neuroimaging,	8	CO5

Reference Books:
1. Modi, Jaishing P, Textbook of Medical Jurisprudence & Toxicology, M.M. Tripathi Pub. 2001.
2. Parikh, Textbook of Medical Jurisprudence & Toxicology, 2001.
3. Sharma, B.R., Forensic Science in Criminal Investigation and Trials (3rdEdn.) Universal Law Publishing Co. Ltd. New Delhi
e-Learning Source:
1. https://youtu.be/5goukAiZa1c?si=6xm7cwL4RGdBIvSw
2. https://youtu.be/Bjm38P1jHoE?si=0vqmxCw9xoZvOaPS
3. https://youtu.be/hDvEcRUPDJI?si=wabtX20j0X8tbrru

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	3	2	3	3	3	3	3	3	2	3	3	2	3	2	2
CO2	2	3	3	2	2	3	2	3	2	3	3	3	3	3	2	3	3
CO3	3	2	3	2	3	2	3	3	3	3	3	2	3	3	2	3	3
CO4	3	3	3	3	2	3	3	3	2	3	3	2	3	3	3	2	2
CO5	3	3	3	3	3	3	3	3	2	3	3	3	2	3	2	3	3

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	**Course Title**	**Attributes**							**SDGs No.**
MFS-204	**Medical Jurisprudence**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-205**	**Title of the Course**	**Forensic Psychiatry and Criminal Behaviour**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**II**	**3**	**1**	**0**	**4**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective of the course is to develop an understanding of psychological and psychiatric principles underlying criminal behaviour, mental disorders, interrogation techniques, and legal aspects of insanity in forensic contexts.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Explain the fundamental concepts, methods, and legal framework of forensic psychology and psychiatric assessment.
CO2	Analyze the neurobiological basis of behaviour and its association with violence, aggression, and mental disorders.
CO3	Evaluate major theories of crime and juvenile delinquency in explaining criminal behaviour.
CO4	Apply psychological principles and scientific techniques in interrogation, deception detection, and investigative profiling.
CO5	Assess psychological disorders and legal concepts of insanity with reference to criminal responsibility and mental health laws.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Introduction to Forensic Psychology**	Definition, Classification: Psychosomatic subtle changes, Brain activity, Collection of evidence, case history studies, observation, interviews, interrogation and experimental approach. Mental Health Act, 1987	8	CO1
2	**Neurobiology of Behaviour**	Neurobiology of Behavior- Neurobiology of Motivation, Violence, Empathy, Deception, Aggression, Depression and Suicidal Ideation. Neurobiology of Brain Disorders. Behavioral Analysis and Neuropsychiatric Disorders Including Depression, Schizophrenia and Anxiety	8	CO2
3	**Theories of crime**	Theories of crime -Biological factors, social learning theories, psychological factors. Juvenile Delinquency: Definition, Concept Juvenile delinquency.	8	CO3
4	**Psychology in Interrogation**	Psycho-Physiological detection of deceptions, scientific, basis, methods, operational environment, application, utility, limitations, and legal status. Investigative Psychology- Criminal profiling, Polygraph, Norco Analysis, BEOS.	8	CO4
5	**Psychological disorders, Insanity**	Psychological disorders, Insanity: Definition, Classification, Types, Signs and Symptoms, Legal Status, Differences between true and Feigned Insanity. Procedure of Admission of Mentally Ill in Psychiatric Hospital, Discharge of Mentally Ill Person, Criminal Law and People with Mental Disorders, Civil Law and People with Mental Disorders, Procedures on Production of Mentally Ill Person in front of Magistrate.	8	CO5

Reference Books:

1. Art & science of polygraph technique :J.A Matte
2. Handbook of forensic psychology -O Donohue levensky
3. Detecting lies& Deceit-A Vrij
4. Brain Experience-C.R Mukundan

e-Learning Source:

1. https://youtu.be/ylPmjXV9hFs
2. https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=eCJfy23Kjy3c0vICLa6VYg%3D%3D

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	3	2	2	3	2	1	3	2	3	3	2	3	2	2
CO2	3	3	3	3	3	3	2	3	2	2	2	3	2	2	2	3	3
CO3	3	2	3	3	3	3	3	2	2	3	2	3	2	2	2	3	2
CO4	3	2	3	3	2	2	3	2	3	3	2	2	3	2	3	2	3
CO5	3	3	3	3	3	2	3	2	2	1	2	3	2	3	2	3	3

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-205	**Forensic Psychiatry and Criminal Behaviour**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√		√					**3,4, 11**

Effective from Session: 2026-27							
Course Code	**MFS-206**	**Title of the Course**	**Dermatoglyphics & Other Impressions-Lab**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**II**				
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective of the course is to develop practical skills in the collection, development, examination, documentation, and comparison of fingerprint and impression evidence using standard forensic laboratory methods.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Prepare and classify ten-digit fingerprint records using primary and secondary classification systems.
CO2	Develop, locate, lift, and compare latent and chance fingerprints using appropriate laboratory techniques.
CO3	Examine, compare, and document fingerprints through systematic comparison and forensic photography.
CO4	Cast, examine, and compare foot, footwear, and tyre marks on different surfaces for forensic analysis.
CO5	Collect, preserve, photograph, and evaluate lip prints, ear prints, and bite marks for forensic comparison.

Unit No.	**Title of the Unit**	**Content of Unit**	**Contact Hrs.**	**Mapped CO**
1	**Introduction of Fingerprints**	1. Print your own 10 Digit Finger Print Card Using Black Ink.	2	CO1
		2. Primary and Secondary Classification of Given Finger Print Chart.	2	
2	**Development of Fingerprints**	3. Location, Development, and Lifting of Latent Finger Print.	2	CO2
		4. Comparison of Chance Finger Prints.	2	
3	**Examination of Fingerprints**	5. Photography of fingerprint.	2	CO3
4	**Foot prints**	6. Casting and Matching of Foot/Footwear Print on different Surface.	2	CO4
		7. Compare the tyre marks/skid marks on mock hit and run case.	2	
5	**Lip Prints, Ear Prints and Bite Marks**	8. Photography, lifting and preservation of bite marks.	2	CO5
		9. Comparison of bite marks.	2	
		10. Collection, evaluation and of lip prints.	2	
		11. Collection, evaluation and of ear prints.	2	

Reference Books:

1. J. A., Sukoo, R. J, and Knupfer (2000), "Encyclopedia of Forensic Science", Siegel, Academic Press
2. Champod, C., Lennard, C. J., Margot, P., &Stoilovic, M. (2017). Fingerprints and other ridge skin impressions. CRC press
3. HenryC. Lee and R. E.Gaensslen, "Advances in Fingerprint Technology", Second Edition.

e-Learning Source:

1. https://youtu.be/Fn5dAM-fKDQ
2. https://youtu.be/pU_Ap4ZwBrc

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	3	2	3	3	2	3	3	2	3	3	2	3	2	2
CO2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3
CO3	2	3	2	2	2	2	3	2	3	2	2	2	3	3	2	1	2
CO4	3	3	2	2	3	3	2	3	2	2	2	3	3	2	2	3	2
CO5	2	2	2	3	2	2	3	3	2	3	2	3	2	3	2	2	2

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	**Course Title**	**Attributes**							**SDGs No.**
MFS-206	**Dermatoglyphics & Other Impressions-Lab**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-207**	**Title of the Course**	**Questioned Documents & Graphology-Lab**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**II**	0	0	2	**1**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective of the course is to develop practical competence in the scientific examination, decipherment, comparison, and interpretation of questioned documents, handwriting, and graphological features using standard forensic laboratory techniques.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Collect, preserve, and conduct preliminary examination of questioned documents, handwriting, and anonymous or disguised writings.
CO2	Apply instrumental, physical, and chemical methods to decipher erased, obliterated, secret, and indented writings and determine document age.
CO3	Compare genuine and forged signatures and examine security features of Indian currency using systematic forensic methods.
CO4	Examine typewritten, printer-generated, and ink evidence to assess document authenticity and alterations.
CO5	Analyze handwriting and signatures using graphological principles for feature evaluation and personality interpretation.

Unit No.	**Title of the Unit**	**Content of Unit**	**Contact Hrs.**	**Mapped CO**
1	**Introduction of Documents & Handwriting Examination Disguised writing and anonymous letters**	**1.** Collection, handling, labelling, and preservation of questioned and standard documents.	2	CO1
		2. Preliminary examination of documents and handwriting.	2	
2	**Examination of Document Determination of the Age of Documents**	**3.** Examination of disguised handwriting and anonymous letters	2	CO2
		4. Decipherment of Secret, and Indented Handwriting Using Instrumental/Physical/Chemical Methods.	2	
		5. Decipherment of Erased and Obliterated Writing Using Instrumental/Physical/Chemical Methods.	2	
3	**Introduction of Documents & Handwriting Examination Disguised writing and anonymous letters**	**6.** Comparative examination of genuine and forged signatures.	2	CO3
		7. Examination of Indian Currency Security Features.		
4	**Examination of Document Determination of the Age of Documents**	**8.** Examination of Type Written and Printer-Generated document	2	CO4
		9. Ink examination of the questioned documents.	2	
5	**Basics of Graphology**	**10.** Graphological Analysis of General Handwriting Features (size, slant, pressure, spacing, baseline and margins).	2	CO5
		11. Personality Interpretation through Zone Analysis and Letter Form Study (upper, middle and lower zones; loops, strokes, t-bars and i-dots).	2	
		12. Graphological Examination of Signatures and Comparative Personality Profiling.	2	

Reference Books:

1. Albert, S. Osborn, Questioned Documents, Second Ed., Universal Law Publishing, Delhi, 1998
2. Charles, C. Thomas, I.S.Q.D. Identification System for Questioned Documents, Billy Prior Bates, Springfield, Illinois, USA, 1971
3. Hard less, H.R., Disputed Documents, handwriting and thumbs – print identification: profusely illustrated, Low Book Co., Allahabad, 1988
4. Kurtz, Sheila, Grapholypes a new plant on handwriting analysis, Crown Publishers Inc., USA, 1983.
5. Wilson, R., Harrison, Suspect Documents – Their Scientific Examination; Universal Law Publishing, Delhi, 1997

e-Learning Source:

1. https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=eCJfy23Kjy3c0vICLa6VYg%3D%3D
2. https://youtu.be/Is6t1EP_3eg

Course Articulation Matrix: (Mapping of COs with POs and PSOs)

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	2	3	3	2	3	3	3	3	2	2	2	2	3	3	2
CO2	2	2	3	3	2	3	3	2	3	3	3	2	3	2	3	2	3
CO3	3	3	2	3	3	2	3	3	3	2	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	2	3	2	3	2	3	3	2
CO5	3	3	2	3	3	2	3	3	2	3	2	3	2	3	2	2	3

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	**Course Title**	**Attributes**							**SDGs No.**
MFS-207	**Questioned Documents & Graphology-Lab**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-208**	**Title of the Course**	**Forensic Chemistry & Explosives-Lab**	**L**	**T**	**P**	**C**
Year	**I**	**Semester**	**II**	0	0	2	**1**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective of the course is to develop hands-on proficiency in the forensic chemical examination, separation, identification, and interpretation of beverages, petroleum products, explosives, and post-blast residues using standard laboratory techniques.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Determine the percentage of ethyl alcohol and examine illicit and country-made liquor using standard analytical methods.
CO2	Separate, identify, and analyze petroleum products and related chemical substances through qualitative and quantitative techniques.
CO3	Conduct preliminary laboratory examination and identification of explosive materials such as black powder.
CO4	Collect, preserve, package, and forward post-blast residues following established forensic protocols.
CO5	Interpret chemical and instrumental analytical reports of explosive residues to draw forensic conclusions.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Forensic Chemistry & Beverages**	**1.** Determination of Percentage of Proof Spirit of Ethyl Alcohol in Illicit Liquor.	2	CO1
2		**2.** Examination of Country-made Liquor by different methods	2	
3	**Examination of petroleum products**	**3.** Separation and Identification of Volatile Liquid by Simple Distillation.	2	CO2
		4. Quantitative and qualitative analysis of chemical fertilizers, insecticides, metallic and non-metallic products.	2	
4	**Explosives**	**5.** Preliminary Examination Black Powder.	2	CO3
	Explosion Phenomena	**6.** Collection, preservation, packaging and forwarding Post blast residue.	2	CO4
5	**Examination of Explosives**	**7.** To study the report of chemical, Instrumental technique and Interpretation result of explosive residue.	2	CO5

Reference Books:

1. Richard Saferstein; Forensic Science Hand Book; Ed.; Prentice – Hall, Englewood Cliff, New jersey; (1982)
2. Dutelle, Aric W. An introduction to crime scene investigation. Jones & Bartlett Publishers, 2011
3. Tersigni-Tarrant, MariaTeresa A., and Natalie R. Shirley, eds. Forensic anthropology: an introduction. CRC Press, 2012
4. Coyle, Heather Miller, ed. Forensic botany: principles and applications to criminal casework. CRC Press, 2004
5. Smith; DGV; A manual of Forensic Entomology Ithaca New York Camstock Univ. Press, USA, (1986)

e-Learning Source:

1. https://youtu.be/tLrTITlcsQM
2. https://youtu.be/p694_czdTMY

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	3	3	2	3	2	3	3	2	2	2	3	2	3	2	2
CO2	3	3	3	3	2	3	3	3	3	3	3	3	3	2	2	3	3
CO3	3	2	3	2	3	3	2	3	3	2	2	3	3	2	2	3	3
CO4	2	3	3	3	2	3	2	3	3	2	3	2	3	2	3	2	2
CO5	2	3	2	2	3	3	3	3	3	3	2	3	2	3	2	3	3

2- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-208	**Forensic Chemistry & Explosives-Lab**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√				√	**3,4**

T.S. MISRA COLLEGE OF ALLIED AND HEALTHCARE SCIENCES

DEPARTMENT OF FORENSIC SCIENCE

MASTER OF SCIENCE IN FORENSIC SCIENCE (M.Sc. FS)

SYLLABUS

YEAR/ SEMESTER: II/III

T.S. Misra College of Allied And Healthcare Sciences
Department of Forensic Science

Study and Evaluation Scheme

Program: Master of Science in Forensic Sciences (M.Sc. FS) **Semester**- III

Sr. No.	Course code	Course Title	Type of Paper	Period Per hr/week/sem.			Evaluation Scheme				Sub. Total	Credit	Total Credits
				L	T	P	CT	TA	Total	ESE			
THEORIES													
1.	MFS-301	Advanced Forensic Toxicology	Core	3	1	0	30	10	40	60	100	3:1:0	4
2.	MFS-302	Advanced Forensic Ballistics	Core	2	1	0	30	10	40	60	100	3:1:0	3
3.	MFS-303	Advanced Digital & Cyber Forensics	Core	3	1	0	30	10	40	60	100	3:1:0	4
4.	MFS-304	Anthropology & Odontology	Core	2	1	0	30	10	40	60	100	2:1:0	3
5.	MFS-305	Research Methodology & Biostatistics	Core	2	1	0	30	10	40	60	100	2:1:0	3
PRACTICAL													
1.	MFS-306	Advanced Forensic Toxicology-Lab	Core	0	0	2	30	10	40	60	100	0:0:1	1
2.	MFS-307	Advanced Forensic Ballistics-Lab	Core	0	0	2	30	10	40	60	100	0:0:1	1
3.	MFS-308	Advanced Digital & Cyber Forensics-Lab	Core	0	0	2	30	10	40	60	100	0:0:1	1
Total				**11**	**05**	**08**	**360**			**540**	**900**	**20**	**20**

Sr. No.	Course Code	Course Title	Type of Paper	Attributes							United Nation Sustainable Development Goal (SDGs)
				Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
THEORIES											
1.	MFS-301	Advanced Forensic Toxicology	Core	√	√	√	√		√	√	3,4
2.	MFS-302	Advanced Forensic Ballistics	Core	√	√	√			√	√	3,4
3.	MFS-303	Advanced Digital & Cyber Forensics	Core	√	√	√			√	√	3,4
4.	MFS-304	Anthropology & Odontology	Core	√	√	√			√	√	3,4
5.	MFS-305	Research Methodology & Biostatistics	Core	√	√	√			√	√	3,4
PRACTICAL											
1.	MFS-306	Advanced Forensic Toxicology-Lab	Core	√	√	√			√	√	3,4
2.	MFS-307	Advanced Forensic Ballistics-Lab	Core	√	√	√			√	√	3,4
3.	MFS-308	Advanced Digital & Cyber Forensics-Lab	Core	√	√	√			√	√	3,4

NOTE:

Abbreviations:

L- Lecture**, T-** Tutorials**, P-** Practical, **CT:** Class Test, **TA:** Teacher Assessment, **ESE:** End Semester Examination, **Sessional Total:** Class Test + Teacher Assessment, **Subject Total:** Sessional Total + End Semester Examination (ESE).

Effective from Session: 2026-27							
Course Code	**MFS-301**	**Title of the Course**	**Advanced Forensic Toxicology**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	3	1	0	**4**
Pre-Requisite	**Nil**	**Co-requisite**	Nil				
Course Objectives	The objective of the course is to provide advanced knowledge of toxicological principles, analytical techniques, and interpretation of poisons and drugs in medico-legal and forensic investigations.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Explain the principles of toxicology, classification of poisons, mechanisms of action, and medico-legal aspects of poisoning cases.
CO2	Analyze biological and non-biological samples using extraction, isolation, clean-up, and field-testing methods in forensic toxicology.
CO3	Evaluate heavy metal and corrosive poison cases through chemical analysis and interpretation of toxicological findings.
CO4	Analyze gaseous, volatile, and drug poisons using systematic forensic and analytical approaches.
CO5	Assess insecticides, plant poisons, animal poisons, food toxins, and entomotoxicological evidence for forensic significance.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Introduction of Toxicology and Forensic Toxicology**	Introduction to toxicology, Principle of toxicology, Different classification of poisons, Types of Poisoning - Sample Collection and Preservation of Toxicological Exhibits in Fatal and Survival Cases - Storage of Samples - Signs and Symptoms of Poisoning – Modes of administration of poisons, routes of elimination, Action of poisons and Factors affecting the Intensity of Poisoning, Identifying route of Administration of Poison – Estimation of time and dose after administration of poison	8	CO1
2	**Toxicological Analysis**	Classification of Matrices: Biological, Non-Biological and Viscera. Significance of Analytical Studies in Forensic Examination. Ingestion of drugs and their metabolism in the body. Extraction of poisons, Isolation and Clean-up Procedures in Toxicological Analysis from viscera and other relevant materials. Field Testing in Toxicological Investigation/Examination of Poisoned Death.	8	CO2
3	**Analysis of Heavy metal and corrosive poisons**	Introduction to heavy metal poisoning (Pb, As, Hg, Cd), Sign and symptoms, Isolation of heavy metals and their chemical analysis. Corrosive poisons: - Mineral acids- Nitric acid, Hydrochloric acid, Sulphuric acid. Strong Base: Potassium hydroxide, Sodium hydroxide	8	CO3
4	**Gases, volatile poisons, and drugs**	**General Study and Analysis of-** Carbon monoxide, carbon dioxide, phosphine, ammonia, cyanides. Alcohols- properties, types, metabolism, and analysis. Properties, Sign & Symptoms and Analysis of- Chloroform, Barbiturates, Amphetamine, LSD, cocaine, Phencyclidine (PCP or "Angel Dust"), Benzodiazepines.	8	CO4
5	**Insecticides, vegetable poisons, animal poison and Entomotoxicology**	**General Study and Analysis of-** Insecticides: (organochloro, organophosphorus, and carbamates) etc, Vegetable Poisons: Abrus Precatorius, Calotropis (Madar/Aak), Oleander, Nerium Odorum, Opium, Cannabis, Dhatura, Marking Nut, Nux Vomica, Ergot, Digitalis, Ricinus Communis etc. Animal Poisons: (Snake venom, Cantharides, scorpions etc.). Food intoxication, Food Infection, Botulism, Mushroom poisoning. Entomotoxicology: Definition and Forensic utility.	8	CO5

Reference Books:

1. Modi, Jaishing P., Textbook of Medical Jurisprudence & Toxicology, M.M. Tripathi Pub., 2001
2. Sunshine, I., Guidelines for Analytical Toxicology Programme, Vol. I, CRCPress, USA,1950
3. Mule, S.J. et al., Immunoassays for Drugs subjects to ab, CRC Press USA, 1974
4. Sunshine, Methods of Analytical Toxicology, CRC Press USA, 1975
5. Working Procedure Manual – Toxicology, BPR&D Publication, 2000

e-Learning Source:

1. https://youtu.be/M8hMjgENVWo?si=LZZO1cMv7yPixjvW
2. https://youtu.be/OlSTET7wYZU?si=TSc6gkRLmiHdKLZs

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	2	3	3	3	3	2	3	2	2	3	2	2
CO2	3	2	3	3	2	3	3	2	3	3	2	2	3	3	3	3	3
CO3	2	2	2	2	2	2	3	2	3	2	3	3	3	3	2	3	2
CO4	3	3	3	2	3	3	2	3	3	2	3	3	2	2	2	2	2
CO5	3	2	3	3	2	2	3	3	2	3	3	2	3	3	3	3	3

2- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-301	**Advanced Forensic Toxicology**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-302**	**Title of the Course**	**Advanced Forensic Ballistics**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	2	1	0	**3**
Pre-Requisite	**Nil**	**Co-requisite**	Nil				
Course Objectives	The objective of the course is to develop a comprehensive understanding of firearms, ammunition, ballistic principles, wound ballistics, and scientific firearm identification for forensic investigation and reconstruction of shooting incidents.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Explain the historical development, classification, construction, functioning, and identification of firearms, including improvised and country-made weapons.
CO2	Analyze the construction, composition, performance, and safety aspects of ammunition and its components under different firing conditions.
CO3	Apply principles of internal and external ballistics to evaluate projectile motion, velocity, recoil, stability, and trajectory characteristics.
CO4	Evaluate terminal and wound ballistics to interpret firearm injuries, projectile behavior on targets, and medico-legal significance of gunshot wounds.
CO5	Examine and compare firearms, fired ammunition, and gunshot residue to establish weapon–ammunition linkage and reconstruct shooting incidents.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**History of Firearms**	Classification and characteristics, various component of small arms, smooth bore and class characteristics, purpose & types of rifling, methods to produce rifling, trigger and firing mechanism, cartridge-firing mechanism, projectile velocity determination, theory of recoil, methods for measurement of recoil, techniques of dismantling / assembling of firearm, identification of origin, improvised / country-made / imitative firearm and their constructional features.	8	CO1
2	**Ammunition**	Definition, classification and constructional features of different types of cartridges, types of primers and priming composition, propellants and their compositions, velocity and pressure characteristics under different conditions, various types of bullet and compositional aspects, latest trends in their manufacturing and design projectile, identification of origin, improvised ammunition and safety aspects for handling firearm and ammunition.	8	CO2
3	**Internal & External Ballistics**	Definition, ignition of propellants, shape and size of propellants, manner of burning Various factors affecting the internal ballistics: lock time, ignition time, barrel time, Equation of motion of projectile, Theory of recoil, Projectile velocity determination Principal problems of exterior ballistics, vacuum trajectory, effect of air resistance on trajectory, base drag, yaw, shape of projectile and stability, trajectory computation, ballistics coefficient and limiting velocity.	8	CO3
4	**Terminal and Wound Ballistics**	Effect of projectile on hitting the target: function of bullet shape, striking velocity, striking angle and nature of target, tumbling of bullets, effect of instability of bullet, effect of intermediate targets, influence of range Cavitations, Ricochet and wound ballistics, evaluation of injuries caused due to shotgun, rifle, handguns and country made firearms, methods of measurements of wound ballistics parameters, post-mortem and anti-mortem firearm injuries. Threshold velocity for penetration of skin/flesh/bones, nature of wounds of entry, exit, initial track with various ranges and velocities with various types of projectiles, explosive wounds. Evaluation of injuries caused due to shot-gun, and rifle firearms, methods of measurements of wound ballistics parameters.	8	CO4
5	**Identification of firearm**	Principles and practice of identification of firearms, different types of marks produced during firing process on cartridge and bullet. Identification of various parts of firearms, techniques for obtaining test material from various types of weapons and their linkage with fired ammunition. Various aspects to determine the range of fire. Time offering different method employed, and their limitations, stereo & comparison microscopy, automatic bullet and cartridge system, Mechanism of formation of GSR, source and collection, spot test, chemical test, identification of shooter and instrumental methods of GSR Analysis, Management and reconstruction of crime scene; suicide, murder and accidental and self-defense cases.	8	CO5

Reference Books:

1. Ballistics DFS Manual, 2005
2. Brian J. Heard; Hand book of Firearms and Ballistics; John Willey, England; (1997)
3. Lab Manual Criminalistics An introduction to Forensic Science, Richard Saferstein (2007) Ninth Edition

e-Learning Source:

1. https://youtu.be/hQ3kflRu0Mc
2. https://youtu.be/qmRq3z3zo7M

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	2	3	3	2	3	3	3	3	2	3	2	2	3	2	2
CO2	2	2	3	3	2	3	3	2	3	3	2	2	3	2	2	3	3
CO3	3	3	3	2	2	2	3	2	3	2	3	3	3	3	3	3	3
CO4	3	3	2	2	3	3	2	3	3	2	3	3	2	3	3	2	2
CO5	3	2	3	3	2	2	3	3	2	3	3	2	3	3	2	3	3

3- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-302	**Advanced Forensic Ballistics**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-303**	**Title of the Course**	**Advanced Digital & Cyber Forensics**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	**3**	**1**	**0**	**4**
Pre-Requisite	**Nil**	**Co-requisite**	Nil				
Course Objectives	The objective of the course is to develop advanced knowledge and analytical skills in cybercrime investigation, digital evidence handling, emerging cyber forensic technologies, and the application of IT laws in cybercrime cases.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Explain the nature, classification, motives, and modus operandi of cybercrimes and cybercriminal activities.
CO2	Analyze various modes and methods of cybercrime commission, including hacking, data theft, online frauds, and social media crimes.
CO3	Apply cyber forensic tools and techniques for search, seizure, acquisition, analysis, and interpretation of digital evidence.
CO4	Evaluate emerging areas of cyber forensics such as IoT, cloud, network, and cryptocurrency forensics in cybercrime investigations.
CO5	Interpret and apply major provisions of the Information Technology Act, 2000 and related laws in the investigation and prosecution of cybercrimes.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Introduction to Cyber Forensic**	Cyber Crimes- Definition, motives, and classification of cyber-crimes. Modus operandi of cyber-crime, types of cyber-crimes viz. hacking, obscenity pornography, Programme manipulation, software piracy, intellectual property and computer security, Email Scams (Phishing/Credit Card), Cyber laundering, Online gambling, Cyber Terrorism, and Hybrid Terrorism, Email Spoofing, Illegal trafficking, etc	8	CO1
2	**Modes & Manner of Cyber Crime**	Modes & Manner of committing Cyber Crime, Cracking & Hacking, Data Theft, Email bombing, Data Didling, Salami attacks, DOS & D-DOS attack, Virus/worm attacks, Logic bombs, Internet time theft, electronic eavesdropping, Cyber stalking& Cyber Bullying, Password sniffing, Cyber-squatting, Spoofing & masquerading, Identity theft, Cyber venting, Cyber defamation, Social Media Crimes	8	CO2
3	**Search and Seizures of Evidence**	Cyber Forensic, Cardinal Rules of Cyber Forensic Investigation of cyber-crimes, tools for analysis, Command line forensic tools, GUI based forensic tools, OSINT, Imaging of digital media, restoration of deleted files, password cracking and E-mail tracking, Encryption and Decryption methods.	8	CO3
4	**Emerging Trends in Cyber Forensics**	**Internet of Things (IoT) Forensics:** IoT device analysis, data extraction, and the implications of IoT in cybercrime investigations. **Cloud Forensics:** cloud storage forensics, cloud service provider cooperation, and virtualization technologies. **Cryptocurrency & Blockchain Forensics:** blockchain forensic tools, tracing cryptocurrency transactions. **Network Forensics:** packet capture and analysis, intrusion detection systems (IDS), and network log analysis.	8	CO4
5	**Major IT Laws related to Cyber Crimes**	Definition of IT Act 2000., Important Sections of IT ACT: Section 3, Section 4, Section 5, Section 6, Section 43, Section 65 and 65B, Section 66, 66A, 66B, 66C, 66D, 66E and 66F, Section 67, 67A and 67B, Section 70, Section 71, Section 72	8	CO5

Reference Books:

1. IT Act (2005)
2. Incident Response and Computer Forensic by Kelvin Mandia, TMH Publication
3. Cyber Forensic a Field Manual for Collecting, Examining and Preserving Evidence of Computer Crimes by Albert J Menendez. Auerbach Publications
4. Digital Forensics: Digital Evidence in Criminal Investigations by Angus McKenzie Marshall

e-Learning Source:

1. https://www.youtube.com/live/GAXXQTuhaPk?feature=share
2. https://youtu.be/QQ9ZLlj36qs

Course Articulation Matrix: (Mapping of COs with POs and PSOs)

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	2	3	3	3	3	2	3	2	2	3	2	2
CO2	3	2	3	3	2	3	3	2	3	3	2	2	3	2	2	3	3
CO3	3	2	3	3	2	2	3	2	3	2	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	2	3	3	2	3	3	3	3	3	3	2
CO5	3	2	3	3	2	2	3	3	2	3	3	2	3	2	3	3	3

4- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-303	**Advanced Digital & Cyber Forensics**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-304**	**Title of the Course**	**Anthropology & Odontology**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	**2**	**1**	**0**	**3**
Pre-Requisite	**Nil**	**Co-requisite**	Nil				
Course Objectives	The objective of the course is to provide fundamental knowledge of forensic anthropology and odontology for human identification, including skeletal analysis, age, sex, race and stature determination, dental identification, and bite mark analysis in medico-legal investigations.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Understand the basic concepts, scope, and forensic significance of anthropology, including human skeletal anatomy and identification principles.
CO2	Apply standard forensic methods to determine age, sex, race, and stature from skeletal remains and bodily features.
CO3	Analyze skeletal remains using forensic anthropometry, osteometry, superimposition techniques, and facial reconstruction for personal identification.
CO4	Explain the principles and applications of forensic odontology, including dental anatomy, age estimation, and dental identification in mass disasters.
CO5	Evaluate bite mark evidence through proper collection, examination, comparison, and interpretation for medico-legal purposes.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Forensic Anthropology**	Introduction, General Definition, Scope and Significance, Anatomy and physiology of major bones like pelvis, limb bones, skull, clavicle and sternum.	8	CO1
2	**Determination of Age, Race, Sex, and Stature**	Determination of Age, Race, Sex and Stature from skeletal remains Identification of sex, age, race and stature through bones, Skull, Pelvis, morphological anatomical and chemical characteristics, Personal identification through bodily features.	8	CO2
3	**Forensic Anthropometry**	Forensic anthropometry / Osteometry: determination of personal identity, superimposition technique, video image analysis, facial reconstruction, Identification of burnt bones, recovery and identification of skeletal remains in accident crimes and mass disasters	8	CO3
4	**Forensic Odontology**	Introduction, General Definition, Scope and Significance Dentition, pattern, types and structure to teeth, age determination identity of person, role in mass disaster, disease of teeth and their significance in personal identification.	8	CO4
5	**Bite Marks**	Introduction, Scope and Forensic Significance, collection and preservation of bite marks, examination, Identification and comparison and its medico legal importance.	8	CO5

Reference Books:

1. Richard Saferstein; Forensic Science Hand Book; Ed.; Prentice – Hall, Englewood Cliff, New jersey; (1982)
2. Dutelle, Aric W. An introduction to crime scene investigation. Jones & Bartlett Publishers, 2011
3. Tersigni-Tarrant, MariaTeresa A., and Natalie R. Shirley, eds. Forensic anthropology: an introduction. CRC Press, 2012

e-Learning Source:

1. https://youtu.be/uS0tovNXyDA
2. https://youtu.be/-WL-toS8qAw

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3	2	3	2	2	3	2	2
CO2	3	3	3	3	3	3	3	3	3	3	2	2	3	2	2	3	3
CO3	2	2	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	2
CO5	3	2	3	3	2	2	3	3	2	3	3	2	3	2	3	3	3

5- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-304	**Anthropology & Odontology**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-305**	**Title of the Course**	**Research Methodology & Biostatistics**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	**2**	**1**	**0**	**3**
Pre-Requisite	**Nil**	**Co-requisite**	Nil				
Course Objectives	The objective of the course is to develop an understanding of research methodology and biostatistics, including research design, ethics, scientific writing, data analysis, and interpretation for conducting and evaluating scientific research.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Understand the fundamentals of research methodology, research design, literature review, and methods of data collection.
CO2	Apply ethical principles in research and develop well-structured research proposals and research questions.
CO3	Demonstrate scientific writing skills for theses, journal articles, and research presentations, including critical appraisal of research.
CO4	Analyze and interpret research data using appropriate statistical methods and hypothesis testing techniques.
CO5	Use statistical software and advanced data analysis techniques to conduct qualitative and quantitative research and report findings effectively.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Introduction to Research Methodology**	An introduction to research methodology, Defining the research problem. Review of literature/use of IT & Database for ROL. Research Design–Experimental & Nonexperimental. Measurement and scaling techniques. Methods of data collection. Sampling. Level of evidence.	8	CO1
2	**Research Ethics**	Research ethics. Writing proposal, & writing in scientific style. Use of animals in research. Critiquing article. Choosing & Developing Research question. Presenting research Proposal. Applying for research funding.	8	CO2
3	**Research Writing**	Writing thesis & journal article. Presenting research. Attending a scientific conference. Preparing a conference poster. Guidelines for development/ refinement, evaluation and use of assessment tools (including attitude scales): scoring, administering tests & critiquing tools. Research in rehabilitation.	8	CO3
4	**Research Data**	Types of data, collection, representation, measure of central tendency, variation, and association. Processing and analysis of data and Interpretation. Testing of hypothesis (parametric or standard tests of hypotheses, non-parametric or distribution-free tests). Statistical analysis for differences and correlation: Basic, Advanced special technique. Analysis of variance and covariance. 6. Multivariate analysis techniques.	8	CO4
5	**Data Analysis**	Sample size estimation and power calculation. Qualitative analysis. Rasch analysis. Software use for data analysis – STATA, SPSS etc. Repertory grid analysis and its application to health care research. Delphi technique (to arrive at a consensus of professional opinion on any given topic).	8	CO5

Reference Books:

1. Research Methodology by CR Kothari
2. K. Ramakant; Elementary Statistics in a world of applications, Goodyear California Pub. Co.,1979
3. Guilford, Statistics in Psychology and Education, McGraw hill, New York, 1986
4. Katz and Kahn, Research in Behavioural Sciences, Methuen, USA, 1979

e-Learning Source:

1. https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=eCJfy23Kjy3c0vICLa6VYg%3D%3D
2. https://youtu.be/7hnCd9Q1qJI

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	3	3	3	3	3	3	3	2	3	2	2	3	3	2
CO2	3	3	3	3	3	3	3	3	3	3	2	2	3	2	2	3	3
CO3	3	3	3	2	2	2	2	3	2	3	2	3	3	3	3	3	3
CO4	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2
CO5	3	2	3	3	2	2	3	3	3	3	3	2	3	2	3	3	3

6- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-305	**Research Methodology & Biostatistics**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-306**	**Title of the Course**	**Advanced Forensic Toxicology-Lab**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	0	0	2	**1**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective of the course is to provide hands-on training in the isolation, detection, and instrumental analysis of toxic substances, drugs, and poisons relevant to forensic investigations.						

Course Outcomes:	
After successful completion of the course, the student will be able to—	
CO1	Perform isolation and preliminary detection of toxic substances, including metallic poisons, using standard laboratory techniques.
CO2	Detect and determine insecticides and pesticides using spot tests and chromatographic methods.
CO3	Identify and analyze narcotic drugs and psychotropic substances using colour tests and chromatographic techniques.
CO4	Analyze volatile, non-volatile, and vegetable poisons commonly encountered in forensic toxicology cases.
CO5	Apply instrumental techniques, including UV–Visible spectrophotometry, for the analysis and interpretation of toxicological evidence.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Unit-I**	**1.** Isolation techniques of different toxic substances	2	CO1
		2. Detection of metallic poisons (Arsenic and mercury)	2	
2	**Unit-II**	**3.** Detection and determination of Insecticides and pesticides by spot colour tests.	2	CO2
		4. Detection and determination of Insecticides and pesticides by chromatographic methods.	2	
3	**Unit-III**	**5.** Detection and determination of Narcotic Drugs, Psychotropic substances ex. Opiates, cannabis, Barbiturates, Benzodiazepines and Amphetamines by spot colour tests.	2	CO3
		6. Detection and determination of Narcotic Drugs, Psychotropic substances ex. Opiates, cannabis, Barbiturates, Benzodiazepines and Amphetamines by chromatographic methods.	2	
4	**Unit-IV**	**7.** Analysis of alcohol and other volatile poisons.	2	CO4
		8. Analysis of non-volatile poisons.	2	
		9. Analysis of vegetable poisons	2	
5	**Unit-V**	**10.** Spot test of nitrates, nitrites, carbonates, sulphates, sulphites, chlorates.	2	CO5
		11. Spot test of mercury, iron, copper, Aluminum, cadmium, zinc and lead.	2	
		12. Instrumental analysis of drugs or toxic substances using UV-Vis spectrophotometer.	2	

Reference Books:

1. Modi, Jaishing P., Textbook of Medical Jurisprudence & Toxicology, M.M. Tripathi Pub., 2001
2. Sunshine, I., Guidelines for Analytical Toxicology Programme, Vol. I, CRCPress, USA,1950
3. Mule, S.J. et al., Immunoassays for Drugs subjects to ab, CRC Press USA, 1974
4. Sunshine, Methods of Analytical Toxicology, CRC Press USA, 1975
5. Working Procedure Manual – Toxicology, BPR&D Publication, 2000

e-Learning Source:

1. https://youtu.be/M8hMjgENVWo?si=LZZO1cMv7yPixjvW
2. https://youtu.be/OlSTET7wYZU?si=TSc6gkRLmiHdKLZs

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	2	3	3	2	3	3	2	2	2	3	2	3	2	2
CO2	3	3	2	3	3	3	3	3	3	3	3	3	3	2	2	3	3
CO3	3	3	3	2	3	3	2	3	3	2	2	3	3	2	2	3	3
CO4	3	3	2	2	3	3	2	3	3	2	3	2	3	2	3	2	2
CO5	2	3	2	2	3	3	3	3	3	3	2	3	2	3	2	3	3

3- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-306	**Advanced Forensic Toxicology-Lab**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√				√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-307**	**Title of the Course**	**Advanced Forensic Ballistics-Lab**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	0	0	2	**1**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective of the course is to impart practical knowledge and skills in the examination of firearms, ammunition, gunshot injuries, and gunshot residue for forensic investigation.						

Course Outcomes:	
After successful completion of the course, the student will be able to—	
CO1	Identify and demonstrate the working principles of smooth bore, rifled, and country-made firearms and their ammunition.
CO2	Perform comparative examination of bullets and cartridge cases using standard forensic ballistics techniques.
CO3	Evaluate firearm-related injuries and wounds caused by shotguns with respect to range and weapon type.
CO4	Assess injuries and wound characteristics produced by pistols, revolvers, and rifles for medico-legal interpretation.
CO5	Conduct Gunshot Residue (GSR) analysis and interpret findings for evidentiary purposes.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Unit-I**	**1.** Demonstration of smooth bore firearm.	2	CO1
		2. Demonstration of rifled firearms.	2	
		3. Demonstration of country made firearms.	2	
2	**Unit-II**	**4.** Demonstration of different types of cartridges used in rifled firearms.	2	CO2
		5. Demonstration of cartridges used in smooth bore firearms.	2	
		6. Bullet comparison	2	
		7. Cartridge case comparison	2	
3	**Unit-III**	**8.** Evaluation of injuries & wound due to different firearms (Shot gun)	2	CO3
4	**Unit-IV**	**9.** Evaluation of injuries & wound due to different firearms (pistol, revolver and rifle)	2	CO4
5	**Unit-V**	**10.** GSR analysis	2	CO5

Reference Books:

1. Lab Manual Criminalistics An introduction to Forensic Science, Richard Saferstein (2007) Ninth Edition

2. Ballistics DFS Manual, 2005

3. Forensic Laboratory Handbook procedure and practice, Ashraf Mozayani, 2011

4. Brian J. Heard; Hand book of Firearms and Ballistics; John Willey, England; (1997)

e-Learning Source:

1. https://youtu.be/hQ3kflRu0Mc
2. https://youtu.be/qmRq3z3zo7M

Course Articulation Matrix: (Mapping of COs with POs and PSOs)

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	2	3	3	2	3	3	2	2	2	3	2	3	2	2
CO2	3	3	2	3	3	3	3	3	3	3	3	3	3	2	2	3	3
CO3	3	3	3	2	3	3	2	3	3	2	2	3	3	2	2	3	3
CO4	3	3	2	2	3	3	2	3	3	2	3	2	3	2	3	2	2
CO5	2	3	2	2	3	3	3	3	3	3	2	3	2	3	2	3	3

4- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
MFS-307	**Advanced Forensic Ballistics-Lab**	√	√	√				√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-308**	**Title of the Course**	**Advanced Digital & Cyber Forensics-Lab**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	0	0	2	**1**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The objective of the course is to develop hands-on skills in digital evidence acquisition, analysis, recovery, and cyber-crime investigation using forensic tools and techniques.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Perform restoration of deleted data and demonstrate password recovery techniques using digital forensic tools.
CO2	Acquire and image digital media and conduct preliminary forensic examination of storage devices.
CO3	Trace and analyze e-mail communications, including origin detection and IP address analysis.
CO4	Apply network and blockchain forensic tools for traffic analysis and investigation of digital transactions.
CO5	Conduct system log analysis and utilize OSINT techniques for cyber-crime investigation and intelligence gathering.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	**Unit-I**	**1.** Restoration of deleted files.	2	CO1
		2. Demonstration of password cracking	2	
2	**Unit-II**	**3.** Imaging of digital media	2	CO2
		4. Demonstration of e-mail tracking	2	
3	**Unit-III**	**5.** Detection of Origin of e-Mails (IP Address) etc.	2	CO3
		6. Search, collection and seizure of digital evidences at the scene of crime.	2	
4	**Unit-IV**	**7.** Introduction to the tools for blockchain analysis.	2	CO4
		8. Network log analysis.	2	
5	**Unit-V**	**9.** System log analysis.	2	CO5
		10. Demonstration of OSINT.	2	

Reference Books:

1. IT Act (2005)

2. Digital Forensics: Digital Evidence in Criminal Investigations by Angus McKenzie Marshall

3. Cyber Forensic A Field Manual for Collecting, Examining and Preserving Evidence of Computer Crimes by Albert J Menendez. Auerbach Publications

4. Leshin, C.B., Internet Investigation in Criminalistics, Prentice Hall, New Jersey, 1997

e-Learning Source:

1. https://www.youtube.com/live/GAXXQTuhaPk?feature=share
2. https://youtu.be/QQ9ZLlj36qs

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	2	3	3	2	2	2	3	2	3	2	2
CO2	3	3	2	3	3	2	3	3	3	3	3	3	3	2	2	3	3
CO3	3	3	2	3	3	2	2	3	3	2	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	2	3	3	2	3	2	3	3	2	2	2
CO5	3	3	2	3	3	2	3	3	3	3	2	3	2	3	2	3	3

5- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
MFS-308	**Advanced Digital & Cyber Forensics-Lab**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√				√	**3,4**

T.S. MISHRA UNIVERSITY

T.S. MISRA COLLEGE OF ALLIED AND HEALTHCARE SCIENCES

DEPARTMENT OF FORENSIC SCIENCE

MASTER OF SCIENCE IN FORENSIC SCIENCE (M.Sc. FS)

SYLLABUS

YEAR/ SEMESTER: II/IV

T.S. Misra College of Allied And Healthcare Sciences
Department of Forensic Science

Study and Evaluation Scheme

Program: Master of Science in Forensic Sciences (M.Sc. FS) **Semester- IV**

Sr. No.	Course code	Course Title	Type of Paper	Period Per hr/week/sem.			Evaluation Scheme				Sub. Total	Credit	Total Credits
				L	T	P	CT	TA	Total	ESE			
PRACTICAL													
1	MFS-401	Internship (04 weeks)	Core	-	-	10	-	100	100	-	100	0:0:10	5
2	MFS-402	Major Project / Dissertation	Core	-	-	40	-	40	40	60	100	0:0:40	20
Total				-	-	**50**	**140**			**60**	**200**	**25**	**25**

Sr. No.	Course Code	Course Title	Type of Paper	Attributes							United Nations Sustainable Development Goal (SDGs)
				Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
PRACTICAL											
1.	MFS-401	Internship (04 weeks)	Core	√	√	√			√	√	3,4
2.	MFS-402	Major Project / Dissertation	Core	√	√	√			√	√	3,4

NOTE:

Abbreviations:

L- Lecture**, T-** Tutorials**, P-** Practical, **CT:** Class Test, **TA:** Teacher Assessment, **ESE:** End Semester Examination, **Sessional Total:** Class Test + Teacher Assessment, **Subject Total:** Sessional Total + End Semester Examination (ESE).

Effective from Session: 2026-27							
Course Code	**MFS-401**	**Title of the Course**	**Internship (04 weeks)**	**L**	**T**	**P**	**C**
Year	**III**	**Semester**	**IV**	0	0	10	**5**
Pre-Requisite	**Nil**	**Co-requisite**	Semester I-III of M.Sc. Forensic Science				
Course Objectives	The objective of the course is to provide M.Sc. Forensic Science students with hands-on professional exposure in forensic laboratories, investigative agencies, or allied organizations, enabling application of theoretical knowledge, development of practical skills, ethical conduct, documentation, and professional competencies relevant to real-world forensic practice.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Through this form of training/internship, the students would be exposed to the actual on the fieldwork carried out on the area of forensic and allied sciences.
CO2	Students will be able to acquire knowledge regarding handling of various equipment's for their analytical work pertaining to research or case related work.
CO3	Students will be able to appraise the legal framework of crime investigation
CO4	Students will be able to appraise the judicial proceeding in crime investigations and visualize the working of forensic experts.
CO5	The student will learn how to write the report in addition to learning the methodologies of presenting the evidence in the court.

Unit No.	**Title of the Unit**	**Content of Unit**	**Contact Hrs.**	**Mapped CO**
Unit 1-5	**Work done during the Internship/ Training Period**	Preparation of the report of work done during training period in FSL, CFSL, Court, Mortuary, Pharmaceutical Laboratory or Testing Laboratory, Private Forensic Science Laboratories etc	04 Weeks	CO1-CO5
	Internship Report	Making the internship/ training report after the completion internship/ training period.		
	Presentation/Viva Voce	Presentation/ Viva-voce of the work done during training period		

Evaluation of Internship/Training:

M.Sc.FS.: Students has to prepare internship report during their training period. The evaluation for internal examination of 100marks will be distributed:

- **Work done during the Internship Period:** 50 marks
- **Internship Report:** 25 marks
- **Presentation and Viva Voce:** 25 marks
- **Total: 100 Marks**

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	2	3	3	3	3	2	3	3	3	3	2	2
CO2	3	3	2	3	2	3	3	2	3	3	2	3	3	2	2	3	3
CO3	3	2	3	2	2	2	3	3	3	2	3	3	2	3	3	3	3
CO4	3	3	3	2	3	3	3	3	2	2	3	3	2	3	3	3	3
CO5	3	2	3	3	2	2	3	2	3	3	3	2	3	3	2	3	2

7- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	**Course Title**	**Attributes**							**SDGs No.**
MFS-401	**Internship (04 weeks)**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

Effective from Session: 2026-27							
Course Code	**MFS-402**	**Title of the Course**	**Major Project / Dissertation**	**L**	**T**	**P**	**C**
Year	**III**	**Semester**	**IV**	0	0	40	**20**
Pre-Requisite	**Nil**	**Co-requisite**	Semester I-III of M.Sc. Forensic Science				
Course Objectives	The objective of the course is to enable students to undertake independent and original research in forensic science by identifying a relevant problem, applying appropriate research methodology, analyzing and interpreting data, and presenting findings in the form of a scientific dissertation following ethical and professional standards.						

Course Outcomes	
After successful completion of the course, the student will be able to—	
CO1	Identify and formulate a relevant forensic science research problem through critical review of literature.
CO2	Design and apply appropriate research methodology, tools, and ethical practices to conduct independent forensic research.
CO3	Collect, analyze, and interpret qualitative and/or quantitative data using suitable analytical and statistical techniques.
CO4	Critically evaluate research findings and draw scientifically valid conclusions with forensic relevance.
CO5	Prepare and present a well-structured dissertation and effectively communicate research outcomes through oral and written presentations.

Evaluation of Major Project/Dissertation:

Students will have to prepare oral presentation of his/her dissertation; each student will be assessed in a 20 minutes time (15 min for presentation & 5 min for discussion/Q&A Session).

The evaluation of dissertation by external examiner with proper approval of concern authorities.

The evaluation for examination of 100 marks will be distributed:

- **On the basics of continuous assessment (Pre-Submission):** 40 marks
- **On the basics of External Evaluators at the time of Final Submission:** 60 marks
- **Total: 100 Marks**

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	2	3	3	3	3	2	3	3	3	3	2	2
CO2	3	3	2	3	2	3	3	2	3	3	2	3	3	2	2	3	3
CO3	3	2	3	2	2	2	3	3	3	2	3	3	2	3	3	3	3
CO4	3	3	3	2	3	3	3	3	2	2	3	3	2	3	3	3	3
CO5	3	2	3	3	2	2	3	2	3	3	3	2	3	3	2	3	2

8- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	**Course Title**	**Attributes**							**SDGs No.**
MFS-402	**Major Project / Dissertation**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	**3,4**

- Format of the **Synopsis** of "Major Project/Dissertation" has been attached as **Annexure-II**.
- Format of the **Thesis** of "Major Project/Dissertation" has been attached as **Annexure-III**.
- Evaluation Sheet for the **"Major Project/Dissertation"** has been attached as **Annexure-IV.**

ANNEXURE- II

(Synopsis Format)

Proposed Synopsis for M.Sc. Forensic Science Dissertation

On

(……..……Topic Name……...……)

Submitted by:

Name of the student

(M.Sc. Forensic Science)

(Enrollment No.)

Under the Supervision of

Dr./Mr/ X.Y.Z
Assistant/Associate Professor/ Professor
Department of Forensic Science

Under the Co-Supervision of

Dr./Mr/ X.Y.Z
Assistant/Associate Professor/ Professor
Department of ----------

Department of Forensic Science

T.S. Misra College of Allied and Healthcare Sciences

T.S. MISHRA UNIVERSITY, LUCKNOW, U.P.

[Month- Year]

1. Introduction:

2. Forensic Relevance of Work:

3. Objectives:

The objectives of the research work are summarized below.

1. .
2. .
3. .

4. Literature Survey:

A thorough exploration of literature was carried out by Scopus, science direct, Pubmed. Besides, some peer reviewed Journals like mention the prominent journals name you referred. The literature carried was from mention the year to till date. It has been observed share the research gap you have identified.
citing the review work to be discussed with guide whether numeric or name method.

5. Plan of work:

a. sample collection: selection, collection, preservation
b. analysis
c. statistical tools
(these sub-categories will be changed as per the work carried out by you, consult your guide)

6. References: (APA format.)

ANNEXURE- III
(Thesis Format)

Cover Page-

Title of the Thesis

Dissertation Submitted
In
Partial fulfillment of requirement for the award of
Degree of

Master of Science
In
Forensic Science

By

Name of student
(Enrollment No: ----------)

Under the Supervision of

Dr./Mr/ X.Y.Z
Assistant/Associate Professor/ Professor
Department of Forensic Science

Under the Co-Supervision of

Dr./Mr/ X.Y.Z
Assistant/Associate Professor/ Professor
Department of ----------

Department of Forensic Science
T.S. Misra College of Allied and Healthcare Sciences
T.S. MISHRA UNIVERSITY, LUCKNOW, U.P.

May/June - 2026

Title Page-

T.S. MISHRA UNIVERSITY

COLLEGE OF ALLIED AND HEALTHCARE SCIENCES

LUCKNOW, UTTAR PRADESH

Title of the Thesis

Dissertation Submitted
In
Partial fulfillment of requirement for the award of
Degree of

Master of Science
In
Forensic Science

By

Name of student
(Enrollment No: ----------)

Under the Supervision of

Dr./Mr/ X.Y.Z
Assistant/Associate Professor/ Professor
Department of Forensic Science

Under the Co-Supervision of

Dr./Mr/ X.Y.Z
Assistant/Associate Professor/ Professor
Department of ----------

Department of Forensic Science
T.S. Misra College of Allied and Healthcare Sciences
T.S. MISHRA UNIVERSITY, LUCKNOW, U.P.

May/June - 2026

Declaration

I, hereby declare that the dissertation titled *"----------"* submitted herein has been carried out by me in the Department of Forensic Science, College of Allied and Healthcare Sciences, T.S. Mishra University, Lucknow, Uttar Pradesh. The work is original and has not been submitted earlier as a whole or in part for the award of any degree at this or any other Institution / University.

I also hereby assign to T.S. Mishra University, Lucknow, Uttar Pradesh all rights under copyright that may exist in and to the above work and any revised or expanded derivatives works based on the work as mentioned. Other work copied from references, manuals etc. are disclaimed.

(Name of student)

Date:

T.S. MISHRA UNIVERSITY

COLLEGE OF ALLIED AND HEALTHCARE SCIENCES

LUCKNOW, UTTAR PRADESH

Certificate

The thesis titled "……." submitted by …… for the award of degree of Master of Science in Forensic Science, has been carried out under my supervision at the Department of Forensic Science, College of Allied and Healthcare Sciences of T.S. Mishra University, Lucknow, Uttar Pradesh. The work is comprehensive, complete, and fit for evaluation.

Supervisor

X.Y.Z
Designation
Department of Forensic Science
College of Allied and Healthcare Sciences
T.S. Mishra University, Lucknow, U.P.

Co-Supervisor

X.Y.Z
Designation
Department of Forensic Science
College of Allied and Healthcare Sciences
T.S. Mishra University, Lucknow, U.P.

Head of the Department

Department of Forensic Science
College of Allied and Healthcare Sciences
T.S. Mishra University, Lucknow, U.P.

Dean

College of Allied and Healthcare Sciences
T.S. Mishra University, Lucknow, U.P.

Forwarded By-

External Examiner

T.S. MISHRA UNIVERSITY
COLLEGE OF ALLIED AND HEALTHCARE SCIENCES
LUCKNOW, UTTAR PRADESH

Approval Sheet

This thesis/dissertation/report entitled "----------" submitted by (Name of the student), enrollment no: (----------) is approved for the award of degree of Master of Science in Forensic Science.

External Examiner **Supervisor**

Co-Supervisor **Dean**

Table of Content

Contents	Page No.
List of Tables	i
List of Figures	ii
List of Abbreviations	iii
Preface	
Chapter-1	
Introduction	01
1.1	
1.2	
1.2.1	
1.2.2	
1.3	
1.4	
Chapter-2	
Review of Literature	
Chapter-3	
Result & Discussion	
Chapter-4	
Summary and Conclusion	
Limitations of the Study	
Future Prospects	
References	

Format of Thesis

A. Language: English.

B. Style: A style appropriate to the subject matter should be followed consistently. American or British spelling is acceptable, but one form must be used consistently throughout the thesis.

C. Paper: A4 size, portrait (vertical) orientation. The thesis must be printed on good quality white paper (20-40 lb. bond) on both side of the paper with all the figures and tables in line with the text. In a way, the thesis shall look like a book. Oversize or undersize pages (e.g., maps) can be included but should not be bound into the thesis— they may be placed in a pocket at the back of the thesis.

D. Margins: For copying and binding purposes, the margins of every page of thesis must be kept within the following:
Top: 1”
Bottom: 1”
Right: 1”
Left 1.5”
Header 1.3”
Footer 1.1”

All manuscript materials must fit within these margin requirements (including tables, headers and footers, figures, graphs and page numbers). When full-page prints of photographs are desired, the image area of the print must conform to the same margins as the text.

E. Font: For the main body of the text, a standard, easily legible, 12- point Times New Roman font is preferred. Footnotes can be 10 or 12-point font. The thesis must be printed in black ink; printing should be laser printer or letter quality. The title of your thesis must be in Title Case or ALL CAPS. The title of all entries in the Table of Contents must be in Title Case.

- Font Style - Times New Roman
- Chapter no. & chapter title > font size >16 Bold >Upper case
- Section & section title >font size >14 Bold >Title case
- Sub-section & sub-section title >font size >12 Bold >Title case
- Title of figures, tables >font size >12 Bold
- Other written matter >font size >12

F. Page Numbers: All pages must be numbered in sequence. There must be no missing, blank, or duplicate pages. Specific page number formats, where applicable, are indicated below. Minimum font size is 10-point and must be consistent throughout the text. **Chapter 1 must start on page 1**.

G. Line Spacing: 1.5

H. Order of Items in Entire Thesis: The following order of items is common to both Standard and Publication thesis formats. Please note which items are optional.

Preliminary Pages (numbered with lower case Roman numerals):

- Title Page
- Declaration
- Certificate
- Approval Sheet
- Abstract
- Dedication Page (optional)
- Acknowledgements
- Table of Contents
- List of Figures
- List of Tables
- List of publications from the thesis (optional)
- List of Abbreviations and Symbols Used (optional)
- Glossary (optional)

Main Pages (numbered with Arabic numerals):

Body of Text – divided into chapters
Final Pages (continuation of Arabic numerals)
Endnotes (optional)
Bibliography/References
Appendices (optional)* (Final Entry in Table of Contents)
Author‘s Bio-Data (optional)

Preliminary Pages

1. **Page Numbers:** The page numbers in the preliminary material are to be in lower case Roman numerals, centered at the bottom of the page, except for the title page, which is not numbered.
2. **Title Page:** This must be in standard format. There is no page number written on this page, but it is considered to be page one (i).
3. **Certificates (page ii):** This must be in standard format. The original copy must bear original signatures.
4. **Dedication Page (if applicable):** The content and format of this page are up to the student.
5. **Table of Contents:** For clarity, use 12 point font. For the ordering of items in the Table of Contents, please see section 3.1.h (above). All chapter titles, headings and subheadings should appear in the Table of Contents. Insert the word “Chapter” in front of chapter numbers in the table of contents and in the main body of text. Chapter 1 should be entitled Introduction, for example, ‘Chapter 1: Introduction‘ and the last chapter entitled Conclusions (or Discussion). Line spacing of 1.5 should be maintained between entries. Text within the titles must not hang over the Table of Content‘s page numbers; the ‘column’ of page numbers must be free of any text from the titles. Right align page numbers. Each appendix (if applicable) should be listed separately in the Table of Contents.

6. **List of Tables and List of Figures (if applicable):** line spacing of 1.5 should be maintained between entries. Text within the titles must not hang over the page numbers; the ‘column’ of page numbers must be free of any text from the titles. The lists should include any material inserted in a back pocket. When listing the Tables and Figures make sure that text within the titles must not hang over the page numbers; the ‘column’ of page numbers must be free of any text from the titles. . Figures and Tables must be numbered separately. For example: “Figure 1. Database contexts”,“Table 1. Input data”. Figure captions are to be below the figures. Table titles are to be above the tables. Do not put the figures and tables at the end of the document. A figure/table should appear at or near the place where it is

referred to in the text for the first time.

7. **Abstract:** This part of the thesis will be the most widely published and most read. It is best written towards the end, but not at the very last minute because you will probably need several drafts. It should be a distillation of the thesis: a concise description of the problem(s) addressed and your method of solving it/them, your results and conclusions. An abstract must be self-contained.Usually they do not contain references. When a reference is necessary, its details should be included in the text of the abstract.The number of words may be limited to 2000 not exceeding four pages of spacing 1.5 and font type Times New Roman with size 12.
8. **List of Abbreviations and Symbols Used** (if applicable).
9. **Glossary** (if applicable).
10. **Acknowledgements (if applicable):** The author of the thesis can acknowledge the help and guidance received from different persons in this section. Any financial support received from funding agencies in the preparation of the thesis should definitely stated here.

Main Pages:

1. **General:** The thesis should be organized as chapters, and should follow the general guidelines and order of items listed in section "H". Chapter 1 must start on page 1 with subsequent chapters should start from the right hand side page as we open the thesis.
2. **Page Numbers:** All pages must be numbered in sequence. Minimum font size is 10 point. It is normal practice for the page numbers in the main body of the text to appear in bottom centre, although lower right or the upper right corners are also acceptable. Page numbers must be at least 0.5 inches (1.3 cm) from the bottom of the page and centered.
3. **Line Spacing:** 1.5, except where indicated otherwise. Short sections (e.g., quotations, equations, footnotes) may require more or less than this.
4. **Chapter Titles, Headings, and Sub-headings:** All chapter titles, headings, and sub headings must appear in the table of contents. For each level of title or heading, consistent format in font size and style, numbering or lettering, and placement should be maintained throughout the thesis text. Each chapter should begin on a new page. Chapter title should be Arial, 16 point Boldface Uppercase.

First-order headings: Times 14-point boldface, upper case, flush left, with one blank line before, and one blank line after. Use a period (".") after the heading number, not a colon.

Second-order headings: As in this heading, they should be Times 14 - initially capitalized, flush left, with one blank line before, and one after. point boldface,

Third-order headings: Third-order headings, as in this paragraph,are discouraged. However, if you must use them, use 12-point Times, initially capitalized, left, preceded by one blank line, followed by a period and your text on the same line.

Tables and Figures:

- **General**: The content, placement, and format of figures and tables are determined by discipline practice. Sources of any figures or tables not original to the thesis must be cited. Lettering in tables and figures should be legible at the scale of reproduction in the thesis. Figures may be in color or grey-scale, as appropriate to the subject matter. Figure and table should be embedded in the text.
- **Captions**: Captions may be directly placed above the table and below the figure. Captions can be in sentence form, without capitalizing all major words and should be self contained in all respects.
- **Page Setup:** Figures, tables, and captions may be embedded in the text or appear on separate pages as appropriate. Landscape or portrait orientation is acceptable, although the page itself must appear in portrait (vertical) orientation. Margin width and page number placement should be consistent with the rest of text.
- **Numbering:** All figures and tables are to be listed at the beginning of the thesis except those appearing in the appendices. Numbering or lettering style (if any) should be in accordance with discipline practice, and consistent throughout the thesis.
- **Other:** Oversize tables, charts, maps, or diagrams are to be inserted into a back inside pocket; these should be included in the list of illustrations or tables.

Header:

Header may be placed at the top of the page and formatting should be consistent throughout the thesis.

Final Pages (Endnotes/References/Appendices)

a) **Endnotes:** If used, must be placed before the Bibliography and Appendix.
b) **References/Reference List:** All cited references must be listed at the end of the thesis. The thesis must contain a complete reference list or bibliography, citing all the literature and other sources referred to in the thesis and appendices, including websites. Format and placement of reference citations should be consistent throughout the thesis, and should conform to a scholarly style consistent with discipline practice. References in the text should be written this way:
    - **Active citation:** 'Johansen (1982)'. Example: "as discussed in Johansen (1982)".
    - **Passive citation:** '(Johansen, 1982)'. Example: "as discussed in the literature (Johansen, 1982)".

Reference to journal articles and papers in serial publications should include:

- last name of each author followed by their initials
- year of publication
- full title of the cited article in quotes, title capitalization
- full name of the publication in which it appears
- volume number (if any) in boldface (Do not include the abbreviation, "Vol.")
- issue number (if any) in parentheses (Do not include the abbreviation, "No.")
- inclusive page numbers of the cited article (include "pp.")

Reference to textbooks and monographs should include:

- last name of each author followed by their initials
- year of publication
- full title of the publication in italics
- publisher
- city of publication
- inclusive page numbers of the work being cited (include "pp.")
- chapter number (if any) at the end of the citation following the abbreviation, "Chap."

Reference to individual conference papers, papers in compiled conference proceedings, or any other collection of works by numerous authors should include:

- last name of each author followed by their initials
- year of publication
- full title of the cited paper in quotes, title capitalization
- individual paper number (if any)
- full title of the publication in italics
- initials followed by last name of editors (if any), followed by the abbreviation, "eds."
- Publisher
- city of publication
- volume number (if any) in boldface if a single number, include, "Vol." if part of larger identifier (e.g., "PVP-Vol. 254")
- inclusive page numbers of the work being cited (include "pp.")

Reference to theses and technical reports should include:

- last name of each author followed by their initials
- year of publication
- full title in quotes, title capitalization
- report number (if any)
- publisher or institution name, city

Online References

- Name of Author
- Name of Article
- Name of website
- Date of Access of Website

Sample References:

[1] Lee, Y., Korpela, S. A., and Horne, R. N., (1982), "Structure of Multi-Cellular Natural Convection in a Tall Vertical Annulus," Proc. 7th International Heat Transfer Conference, U. Grigul et al., eds., Hemisphere, Washington, DC, 2, pp. 221–226.

[2] Smith, R., (2002), "Conformal Lubricated Contact of Cylindrical Surfaces Involved in a Non-Steady Motion," from web site http://www.cas.phys.unm.edu/rsmith/homepage. html accessed on 12/08/2007.

[3] Tung, C. Y., (1982), "Evaporative Heat Transfer in the Contact Line of a Mixture," Ph.D. thesis, Rensselaer Polytechnic Institute, Troy, NY.

Appendices:

Each appendix should be listed separately in the Table of Contents.

- **General:** Appendices may include data tables, source codes, analytical procedures, survey forms, or any other supplementary material approved by the supervisory committee. Content and format should be in accordance with discipline practice.
- **Copyright Permission:** Where a thesis includes copyrighted material (e.g., publications), copyright permission letters should be included as a separate appendix. Reprints may be included in the appendices, provided copyright permission is obtained.
    a) **Pagination**: Pages should be numbered in sequence with the rest of the thesis.
    b) **Line Spacing**: spacing between entries should be 1.5. Individual reference entries must not be split over two pages.
    c) **Font Size**: Font size for both endnotes and cited references should be consistent with the rest of the thesis text. Other details of format (italics, punctuation, etc.) should be compatible with discipline practice and should be consistent through the entire list.

Binding:

The evaluation copies of the thesis/dissertation/report may be spiral bound or soft bound. Hard bound 5 Copies for Post Graduate Programs shall be submitted. The final hard bound copies to be submitted after the viva-voce examination will be accepted during the submission of thesis/dissertation/report with the following color specification:

- M.Sc. Dissertation- **Maroon** (Color Code- **#800000**).

Front Covers The front covers shall contain the following details:

- Full title of thesis in 6 mm 22 point's size font properly centered and positioned at the top.
- Full name of the candidate in 4.5 mm 15 point's size font properly centered at the middle of the page.
- A 40 mm dia replica of the Institute emblem followed by the name of department, name of the Institute/college/school and the year of submission, each in a separate line and properly centered and located at the bottom of page.

Lettering

All lettering shall be embossed in gold.

Bound back

The degree, the name of the candidate and the year of submission shall also be embossed on the bound (side) in gold.

Blank Sheets

In addition to the white sheets (binding requirement) two white sheets shall be put at the beginning and the end of the thesis.

Title Sheet

This shall be the first printed page of the thesis and shall contain the submission statement: the Thesis/Dissertation/project Report submitted in partial fulfillment of the requirements of the Degree, M.Sc. Forensic Science, the name and Roll No. of the candidate, name(s) of the Supervisor and Co-supervisor (s) (if any), Department, Institute and year of submission.

T.S. MISHRA UNIVERSITY

COLLEGE OF ALLIED AND HEALTHCARE SCIENCES

LUCKNOW, UTTAR PRADESH

ANNEXURE-IV

Dissertation Evaluation Sheet

Master of Science in Forensic Science

Name of the Student:		**Session:**	
Enrollment No.:		**Date:**	
Name of the Subject:	Major Project/Dissertation	**Subject Code:**	MFS-402

Sr. No.	Evaluation	Point to be Considered	Max. Marks	Marks Obtained
1	On the basics of continuous assessment (Pre-Submission)	Periodic Consultation with Guide	10	
2		Regular collection of Data with the consultation of guide.	05	
3		Command of the topic & presentation skills	10	
4		Methods, analysis, discussion and Conclusions	10	
5		Contribution to knowledge and thesis structure	05	
		Pre-Submission Marks	**40**	
		Review all Headings		
1	On the basics of External Evaluators at the time of Final Submission.	Introduction, Aims, objectives & research hypothesis	05	
2		Review of literature	05	
3		Material & Methods	05	
4		Data analysis & results	05	
5		Discussion, limitation & future study	05	
6		Conclusion, significance.	05	
7		Bibliography	05	
8		Tables, graph, diagram & Annexure (if any) Statistical Analysis Master Chart	05	
		Paper publication/thesis presentation in a national or international conference	05	
9		Nobility of the work	05	
10		The defense of the study (Presentation)	10	
		Final Submission Marks	**60**	
		Total Score:	**100**	

Comments/Suggestions:

Signatures with date-

Supervisor **Co-Supervisor** **External Examiner** **Dean/HOD**