

ST. PHILOMENA'S COLLEGE (AUTONOMOUS)

Affiliated to University of Mysore
Accredited by NAAC with 'B⁺⁺' Grade
Bannimantap, Mysore, Karnataka,
India-570015



PG DEPARTMENT OF CRIMINOLOGY & FORENSIC SCIENCE

The Board of Studies in Criminology & Forensic Science

which met on 05-11-2024 has

approved the syllabus and pattern of examination for

Semesters I and II for the

Academic Year 2024-25

BOS COMMITTEE MEMBERS

Sl. No.	Name	Designation
1	Mr. Francis Devasahayam B	Chairman
2	Dr. G B Aravind	University Nominee
3	Mr. Roshan D'Souza	Member
4	Dr. Chandrashekar	Industrial Partner
5	Ms. V. Gouri Sulakshana	Member

I SEMESTER
MSc Criminology & Forensic Science

Course Title: CRIMINALISTICS		Course Credits: 3
Course Code:	L-T-P per week: 3-0-0	
Total Contact Hours: 42		
Formative Assessment Marks: 30	Summative Assessment Marks: 70	

Core Course Content

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
	C1 Component	15
	C2 Component	15
	Total	30

CRIMINALISTICS

HARD CORE (COMPULSORY PAPER)

3:0:0=3

CREDITS

Objectives:

- To understand the foundational principles, scope, and ethical considerations of forensic science, along with the role and legal aspects of expert testimony in criminal justice.
- To familiarize students with the hierarchical structure, roles, and functions of forensic institutions and laboratories at regional, state, and national levels.
- To provide an in-depth understanding of explosives, their classification, investigation processes, and methods for detecting explosive residues.
- To understand the causes, patterns, and motives behind fire incidents and arson, along with the role of the fire investigator in identifying accelerants and ensuring fire safety precautions.

Course Based Outcomes

- Students will be able to explain the principles of forensic science, the contributions of pioneers, and the admissibility of expert evidence in court, including Frye and Daubert standards. They will also understand the ethical implications in forensic practice.
- Students will be able to describe the organizational framework and functions of RFSL, SFSL, CFSL, and DFSS, along with the roles of institutions like CCMB, GEQD, and NCRB, and the utility of mobile forensic labs.
- Students will demonstrate the ability to classify explosives, analyze IEDs, and describe methods for collecting and preserving explosive residues for laboratory identification and crime reconstruction.
- Students will be able to identify fire patterns, explain the causes of fire and arson, detect accelerants, and evaluate the motives behind arson. They will also gain knowledge of fire prevention strategies.

Unit – I Introduction of Forensic Science, Scope, Principles of Forensic science, Pioneers and their contribution to forensic science, Expert: Meaning, Importance of expert evidence, Laws relating to expert evidence with reference to BNSS and BSA, Courts Ruling on expert evidence in India, Admissibility of evidence: Frye case, Daubert Standard and guidelines for expert testimony, Ethics in Forensic Science;

Unit 2- Organizational structure of Forensic Science Laboratories at Regional, State & Central level- RFSL, SFSL, CFSL & DFSS. Institutions of forensic importance and their functions CCMB, CDFD, GEQD, FPBx, MINTS, BPRD, CDTS, NCRB, NFSU, Divisions of Forensic Sciences Laboratory, Mobile Forensic Laboratory

Unit-3 Explosives: Introduction, Classification, Process of explosion investigation and laboratory identification. deflagration and detonation; Detection and examination of explosive. Improvised

Explosive Devices (IEDs) and their characteristics, Collection and preservation of explosive residues from the scene of occurrence; Evaluation and reconstruction of sequence of events.

Unit- 4 Introduction to Fire and Arson Investigation, Types of Fires, and Causes of fire, Patterns of fire, detection of arson; fire accelerants and their detection, Fire and combustion, Role of the Fire Investigator, Arson Motives and Pathology, Fire Problems and Precautions.

Suggested Readings:

1. Criminal investigation- J. Horson.
2. Criminalistics-An Introduction to Forensic Science- Safferstein, Richard M, (1990).
3. Crime investigation- Paul L Kirk – Edited by John I Thronton (1974).
4. Criminal investigation- Soderman and O'Connell.
5. Forensic Science in Investigation and Trails- Sharma B.R
6. Forensic Sciences- Eckert, William.
7. Code of Criminal Procedure. Rathanlal and Dhirajlal (2019).
8. Indian Evidence Act.-Avtar Singh, Rathanlal and Dhirajlal (2019).
9. Indian Evidence Act- Rathanlal and Dhirajlal
10. Fundamentals of Forensic Science, Houck, M.M & Siegel, J.A; Academic Press, London, 2006.
11. Techniques of Crime Scene Investigation, 7th Ed, Barry, A.J. Fisher; CRC Press, NewYork, 2003.
12. Forensic Science- An Introduction to Scientific and Investigative Techniques, James, S.H and Nordby, J.J; CRC Press, USA, 2003.
13. Advanced Technology in Forensic Investigation, Annama John Cosmo Books Thrissur (2019).

I SEMESTER
MSc Criminology & Forensic Science

Course Title: FORENSIC MEDICINE		Course Credits: 3
Course Code:	L-T-P per week: 3-0-0	
Total Contact Hours: 42		
Formative Assessment Marks: 30	Summative Assessment Marks: 70	

Core Course Content

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
	C1 Component	15
	C2 Component	15
	Total	30

FORENSIC MEDICINE

HARD CORE PAPER (COMPULSORY PAPER)

3:0:0= 3 CREDITS

Objectives:

- To understand the basics of forensic medicine, methods of identifying individuals, basic human anatomy, and legal procedures related to forensic investigations.
- To learn about different types of injuries, how they occur, and their importance in forensic investigations.
- To understand the types of death, changes that occur in the body after death, and the importance of asphyxia-related deaths in forensics.
- To understand the role of insects in death investigations and the process and purpose of autopsies.

Course Based Outcomes

- Students will learn how to identify individuals using physical features and techniques, understand basic body systems, and explain legal procedures like inquests and dying declarations.
- Students will be able to identify types of injuries, explain their causes, and distinguish between injuries that occurred before and after death.
- Students will learn to describe the types of death, identify body changes after death, and understand the forensic significance of asphyxia.
- Students will learn how insects help estimate the time of death and understand the steps, precautions, and importance of postmortem examinations.

UNIT 1: Introduction to forensic medicine, meaning and development of forensic medicine personal identification of living and dead (race, sex, age, complexion, anthropometry, fingerprints, footprint, tattoo marks, lip prints, ear prints, brain fingerprinting, scars, occupational marks, handwriting, personal belongings, voice and speech, DNA, Superimposition techniques for skull and trace evidence factors) Elementary study of human anatomy- circulation system, respiration system, nervous system, reproductive system, digestive system, urinary system, and skeleton system. Brief knowledge about legal procedure. Inquest- police, magistrate, coroner and medical examiners inquest, dying declaration, dying deposition, exhumation.

UNIT 2: Meaning, types and medico legal importance of Mechanical injuries- (abrasion, contusion, laceration, fracture and dislocation of bones/teeth, incised wounds, chop wound, stab wounds and firearm wounds). Thermal injuries- meaning, types – burns, scalds, lighting, electricity, and radiation. chemical injuries, miscellaneous injuries. Postmortem and ante mortem wounds.

UNIT 3: Death- meaning, types: somatic and cellular death, mode of death, manner of death, postmortem changes- immediate, early, and late changes, suspended animation. Medicolegal importance of death, Asphyxia death- meaning and types and medicolegal importance of asphyxia death.

UNIT 4: Forensic entomology: basic elements of entomology, importance of insects in forensic

investigations, life cycles of insects to determine time since death, applications of forensic entomology. Autopsy: definition, classification, objectives, legal formalities for autopsy, autopsy procedure, skin incisions, post mortem examination: importance, post mortem report format, external and internal examination in brief. viscera and its preservation. Precautions to be taken during post mortem examination.

Suggested Readings:

1. Medical jurisprudence and toxicology - Dr. 1 N.J. Modi
2. Synopsis of Forensic medicine Dr. Narayana Reddy
3. Parikh's Medical Jurisprudence and toxicology
4. Textbook of Forensic Medicine and Toxicology: Principles and Practice,5/e- Krishna vij
5. Textbook of forensic medicine and Toxicology – Anil Aggrawal.
6. Principles f Forensic Medicine & Toxicology – Rajesh Bardale.

I SEMESTER
MSc Criminology & Forensic Science

Course Title: CRIME SCENE INVESTIGATION AND MANAGEMENT		Course Credits: 3
Course Code:		L-T-P per week: 3-0-0
Total Contact Hours: 42		
Formative Assessment Marks: 30		Summative Assessment Marks: 70

Core Course Content

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
C1 Component		15
C2 Component		15
Total		30

CRIME SCENE INVESTIGATION AND MANAGEMENT

HARDCORE PAPER

3:0:0=3 CREDITS.

Objectives:

- To understand the types of crime scenes, methods of searching and documenting them, and techniques for handling different types of evidence.
- To learn the components of crime scene management, roles of different experts, safety measures, and the importance of proper evidence handling and documentation.
- To understand the process of analyzing evidence, reconstructing crime scenes, and creating logical hypotheses about crime events.
- To learn the significance and techniques of photography and videography for documenting crime scenes and evidence.

Course Based Outcomes

- Students will learn how to identify and classify crime scenes, document them using notes, sketches, and photography, and properly collect and preserve evidence for further analysis.
- Students will understand how to manage a crime scene, coordinate with different agencies, maintain a chain of custody, and prepare professional reports for investigation and court purposes.
- Students will learn how to reconstruct crime scenes like accidents or shootings, use digital tools, write reconstruction reports, and link evidence with behavioral analysis for solving cases.
- Students will understand how to use various cameras and photography techniques, including specialized photography, to document crime scenes effectively, and how these photographs can be used as evidence in court.

UNIT 1: Crime scene: Introduction, Types of Crime Scenes: Based on the location- Indoor, Outdoor, Mobile. Based on the occurrence- Primary, Secondary, Tertiary; Various Crime Scenes (Homicide, Suicide, Murder, Accidental, HBT, Hit and Run, Hanging, Drowning, Shooting etc.). Various Crime Scene Search methods; Crime Scene Documentation: (Note Making, Sketching, Photography, Videography) Locating, Collection Preservation & Forwarding of Various types of Evidences (Physical, Biological, Chemical)

UNIT 2: Introduction & Components of CSM: Information, Manpower, Technology & Equipment and Logistics Management. Role of various experts at crime scene Safety and Health standards on crime scene: OSHA; Coordination amongst various agencies involved in investigation: Police, Scene of crime officer's (SOCO), Dog Squad, Mobile forensic Vans, Forensic Scientists, Medical Examiners. Evidence recovery log. Chain of custody. Forwarding & Authorization letters and relevant paper work; Report Writing and Evidence Evaluation: Components of reports and report format in respect of crime scene and laboratory findings.

UNIT 3: Steps involved (Recognition of evidence, Documentation of evidence, Collection of

evidence, Evaluation of evidence, Hypothesis, Testing, Reconstruction), various crime scenes and scenarios (like Hit and Run, Accidents, Hanging, Shooting, Burglary, etc.). Role of Logic in CSR. Writing a Reconstruction report. Correlation of crime scene analysis with behavioural analysis. Cases of Special Importance pertaining to forensic examination Digital Aids in Reconstruction (3-D Photography/Videography, Computer aided Reconstruction).

UNIT 4: Introduction, Significance of Photography in Forensic Science. Camera and its working, Types of Cameras, Types of Media, Number of Photographs, crime scene and laboratory - close-up, midrange and long range, bird-eye view photography; Specialized photography: UV and IR photography, Photomicrography and macro photography, Videography of the Crime Scene Admissibility of Photographs in court.

Recommended Reading:

1. Houck, M.M & Siegel, J.A; Fundamentals of Forensic Science, Academic Press, London, 2006.
2. Mordby, J. & Reckoning, D; The Art of Forensic Detection, CRC Press New York, 2003.
3. David R.Redsicker; The Practical Methodology of Forensic Photography- 2nd Ed. CRC Press, New York, 2001.
4. R.E.Jacobson, S.F.Ray, G.G.Attridge; The Manual of Photography- Photographic and
5. Digital Imaging , N.R. Oxford.
6. Sharma, B.R; Forensic Science in Criminal Investigation & Trials, Universal Publishing Co., New Delhi, 2003.
7. Barry, A.J. Fisher; Techniques of Crime Scene Investigation, 7th Ed, CRC Press, New York, 2003.
8. Nanda B.B and Tewari, R.K; Forensic Science in India- A vision for the Twenty First Century, Select Publisher, New Delhi, 2001.
9. James, S.H and Nordby, J.J; Forensic Science- An Introduction to Scientific and Investigative Techniques, CRC Press, USA, 2003.
10. Saferstein; Criminalistics- An Introduction of Forensic Science, Prentice Hall Inc, USA,20

I SEMESTER
MSc Criminology & Forensic Science

Course Title: CRIMINALISTICS, FORENSIC MEDICINE, CRIME SCENE INVESTIGATION AND MANAGEMENT-PRACTICALS		Course Credits: 4
Course Code:		L-T-P per week: 0-0-4
Total Contact Hours: 56		
Formative Assessment Marks: 30	Summative Assessment Marks: 70	

Core Course Content

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
C1 Component		15
C2 Component		15
Total		30

PRACTICAL

CRIMINALISTICS, FORENSIC MEDICINE & CRIME SCENE MANAGEMENT

HARDCORE PAPER

0:0:4 = 4 CREDITS.

1. Examination of Hair
2. Examination of Glass fracture for the identification of direction of force
3. Density gradient analysis of soil
4. Identification of wounds and injuries
5. Examination of Human skeleton
6. Examination of simulated indoor crime scenes
 - a. Searching
 - b. Sketching
 - c. Handling, Collection and Packing of evidence
7. Examination of simulated outdoor crime scenes
 - a. Searching
 - b. Sketching
 - c. Handling, Collection and Packing of evidence
8. Filling of FIR
9. Visit to allied institutions.

I SEMESTER
MSc Criminology & Forensic Science

Course Title: THEORIES OF CRIMINOLOGY	Course Credits: 3
Course Code:	L-T-P per week: 3-0-0
Total Contact Hours: 42	
Formative Assessment Marks: 30	Summative Assessment Marks: 70

Core Course Content

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
	C1 Component	15
	C2 Component	15
	Total	30

THEORIES OF CRIMINOLOGY

SOFT CORE

3:0:0=3 CREDITS.

Objectives:

- To understand the historical development of criminological theories, including classical, neo-classical, biological, and psychological perspectives on criminal behavior.
- To study the impact of social structures and learning processes on criminal behavior, including strain and social learning theories.
- To explore theories that emphasize cultural and environmental factors in crime, including cultural conflict, subcultures, and social disorganization.
- To understand how social controls, labeling, and modern criminological theories explain crime and criminal behavior in contemporary society.

Course Based Outcomes

- Students will learn about key criminological theories like free will, utilitarianism, and biological explanations, and how these theories contributed to understanding criminal behavior.
- Students will be able to explain theories like Anomie, Strain, Differential Association, and Social Learning, and understand how social influences shape criminal actions.
- Students will learn how culture, opportunities, and neighborhood dynamics contribute to criminal behavior and develop an understanding of social ecology theories like Concentric Zones.
- Students will gain knowledge of control and labeling theories, postmodern perspectives like Routine Activity and Broken Window theories, and contemporary approaches to understanding life course and rational decision-making in crime

UNIT 1: Demonology, Classical Theory – Cesare Beccaria, Jeremy Bentham – Free Will, Utilitarian theory; Neo-Classical School; Biological-Italian School; Biological theories - Born Criminality – Cesare Lombroso; Body Types- Sheldon, Physical inferiority – Hooton & Other Biogenic theories; Cartographic School – Adolf Quetelet; Mental Deficiency-Henry H. Goddard; Emotional Disturbance Theory-William Healy; Psychoanalytical Theory-Sigmund Freud.

UNIT 2: Social Strain Theories: Theory of Anomie – Emile Durkheim; Strain Theory – Robert K. Merton; social learning Theories: Differential Association- E.H Sutherland, Theory of Imitation, – Gabriel Tarde, Social learning – Ronald Akers, Differential Identification- Daniel Glaser.

UNIT 3: Cultural Conflict Theory – Thorstein Sellin, Sub-Culture Theory - Albert Cohen, Differential Opportunity Theory – Richard Cloward, Lloyd Ohlin; Social Ecology Theories – Concentric Zone Theory, Social Disorganization Theory. Lower class culture theory.

UNIT-4 Social Bonding & Control Theories: Drift theory – Robert K Merton, Containment Theory – Walter Reckless; Social Control Theory – Travis Hirschi, Techniques of Neutralization – Sykes, Matza; Labelling Theory – Howard Becker & Edwin Lemert; postmodern theories: Routine Activity Theory – Cohen & Felson, Shaming theory, Life course theory- Robert J. Sampson and John H. Laub, Broken window theory- George Kelling. Rational-Choice theory – Ronald Clarke, Derek Cornish; Life course theory & Contemporary perspectives in criminology.

Suggested Readings:

1. Criminology and Criminal Administration-Dr. S.S. Srivastava
2. Criminology-Adler, Muller & Laufer-4ed.
3. Criminology Theories-Frank P. William III, Marilyn D. Mc Shane
4. Criminology-George B. Vold
5. Principles of Criminology-E.H. Sutherland & D.R. Cressey

I SEMESTER
MSc Criminology & Forensic Science

Course Title: CRIME AND SOCIETY		Course Credits: 3
Course Code:	L-T-P per week: 3-0-0	
Total Contact Hours: 42		
Formative Assessment Marks: 30	Summative Assessment Marks: 70	

Core Course Content

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
	C1 Component	15
	C2 Component	15
	Total	30

CRIME AND SOCIETY

SOFT CORE

3:0:0=3 CREDITS.

Course Objectives

- To develop an understanding of various types of crimes, their classifications, and the typology of offenders.
- To analyze the nature and impact of economic and financial crimes, including white-collar and corporate crimes.
- To explore the forms, linkages, and challenges associated with organized crime at regional and international levels.
- To examine political crimes, including terrorism and communal violence, with a focus on their historical and contemporary contexts.

Course Learning Outcomes

- Identify and classify different types of crimes, offenders, and their societal impacts, including crimes against individuals, property, and nature.
- Analyze the underlying factors, forms, and mechanisms of economic and financial crimes, and propose measures for their control.
- Evaluate the structure and operations of organized crime syndicates, and suggest strategies for their prevention and prosecution.
- Critically assess the nature, forms, and consequences of political crimes such as terrorism and communal violence, and propose solutions for addressing these challenges.

UNIT I CRIME TYPOLOGY

Crime and Criminal Typology - crimes against persons and crimes against property; Adult and Juvenile – Habitual offenders, Professional offenders, and violent offenders Crimes against nature and natural resources - Crime against community (caste, race etc). Crime against nation (counterfeit currency, spread of disease, hazardous waste disposal etc). Crimes against humanity (weapons of war, religious fanatics etc).

UNIT-II ECONOMIC AND FINANCIAL CRIMES

White Collar Crime – Nature, Meaning & forms, Import /Export violations, insider trading, labor racketeering, Embezzlement, Land hijacking/ Real estate fraud; Corporate crimes - Tax Evasion, Counterfeiting; Bank Frauds – Credit card frauds, Money Laundering, Insurance Frauds, Frauds by Non-Banking institutions - Corruption, Street crime: The Economic Context, Capitalist Development and Urbanization, The Illegal Economy- Teenage Thievery, Street Robbery, Urban Gangs- Gangs in Historical and Contemporary Context.

UNIT - III ORGANIZED CRIME Nature, Meaning and forms – Criminal syndicates – Organized crimes: Regional and international linkages – Transnational Organized Crime – Drug

smuggling, Human Trafficking, Problems of identification, investigation and prosecution – Prevention and control strategies.

UNIT- IV POLITICAL CRIMES: TERRORISM AND COMMUNAL VIOLENCE

Terrorism: Nature, meaning and forms; Types of terrorism; Contemporary forms of terrorism.

Communal Violence: Historical Perspectives- Communal Violence in post- independence India –

Recent Terrorist attacks in India

REFERENCE BOOKS:

1. S.H. James and J.J. Nordby, Forensic Science: An Introduction to Scientific and Investigative Techniques, 2nd Edition, CRC Press, Boca Raton (2005).
2. Crime, Justice, and Society: An Introduction to Criminology FOURTH EDITION Ronald J. Berger, Marvin D. Free, Jr., Melissa Deller, and Patrick K. O'Brien, 2015
3. R. Saferstein, Criminalistics, 8th Edition, Prentice Hall, New Jersey (2004).
4. R. Gupta, Sexual Harassment at Workplace, LexisNexis, Gurgaon (2014)

I SEMESTER
MSc Criminology & Forensic Science

Course Title: WILDLIFE AND ENVIRONMENTAL FORENSICS		Course Credits: 3
Course Code:	L-T-P per week: 3-0-0	
Total Contact Hours: 42		
Formative Assessment Marks: 30	Summative Assessment Marks: 70	

Core Course Content

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
	C1 Component	15
	C2 Component	15
	Total	30

WILDLIFE AND ENVIRONMENTAL FORENSICS

SOFT CORE

3:0:0=3 CREDITS.

Course Objectives

- To understand the significance of wildlife forensics, including protected species, sanctuaries, and wildlife protection policies under relevant laws.
- To analyze different types of wildlife crimes, methods of poaching, evidence recovery, and the challenges in species identification, particularly reptile skin trade.
- To explore the field of environmental forensics, focusing on the detection and analysis of environmental pollutants and their forensic implications.
- To familiarize students with environmental legislation, the role of pollution control boards, and public involvement in preventing and controlling environmental pollution.

Course Learning Outcomes

- Identify and explain protected and endangered species, the importance of wildlife sanctuaries, and the provisions of the Wildlife (Protection) Act, 1972.
- Demonstrate knowledge of wildlife crime investigation, including poaching techniques, evidence recovery, and species identification, with a focus on reptile skin morphology.
- Apply forensic techniques to detect and analyze environmental pollutants such as mercury, asbestos, lead, arsenic, pesticides, and oil spills, and understand their environmental impacts.
- Evaluate the framework of environmental legislation, the role of pollution control boards, and the importance of public awareness and PILs in addressing environmental pollution in India.

Unit I: Wildlife Forensic: Protected and endangered species of animals and plants; Sanctuaries and their importance; Relevant provision of wildlife and environmental act; Enforcement of wildlife protection policy, Wildlife (Protection) Act-1972.

Unit II: Types of wildlife crimes, different methods of killing and poaching of wildlife animals; Recovering evidence at poaching scenes, Locating the burial: Anomalies on the surface international trade in reptile skins, Challenges to species identification of reptile skin products, species and products represented in the reptile skin trade, reptile scale morphology basics and current limitations, Identifying features of major reptile groups.

Unit III: Environmental Forensics: Introduction to Environmental Forensics. Mercury- Natural and anthropogenic sources, detecting mercury in indoor environment and forensic aspects. Asbestos-sources and detection in air, water, fibres etc. Sewage, Lead- sources, compounds, and lead forensics. Arsenic- sources, compounds, analytical methods and forensic aspects. Pesticides- Types, analytical testing and forensic techniques. Crude oil and refined products- oil analysis methods, oil spill analysis protocol

Unit IV: Environmental Legislation: central and state boards for the prevention and control of

environmental pollution, powers and functions of pollution control boards, penalties and procedure, duties and responsibilities of citizens for environmental protection. The Water (Prevention and Control of Pollution) Act 1974. Prevention and Control of Air Pollution Act 1981, Forest Conservation Act 1981, Environment (protection) Act 1986, Hazardous waste (Management and Handling) Rules, 1989, Bio-Medical Waste (Management and Handling) Rules, 1998. Issues involved in enforcement of environmental legislation, public awareness, and public interest litigations (PILs) and its role in control of environmental pollution in India.

Suggested Readings

1. Forensic science in wild life investigation, Linnarce, Adrian CRC Press, Taylor & Francis
2. The wild life (protection) act, Baalu, T.R. 1972, Nataraj Publication
3. Wild life (Protection act, 1972), Universal Publication
4. Wildlife protection act, 1972; Natraj Publishers

II SEMESTER
MSc Criminology & Forensic Science

Course Title: RESEARCH METHODOLOGY AND STATISTICAL METHODS		Course Credits: 4
Course Code:		L-T-P per week: 4-0-0
Total Contact Hours: 56		
Formative Assessment Marks: 30	Summative Assessment Marks: 70	

Core Course Content

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
	C1 Component	15
	C2 Component	15
	Total	30

RESEARCH METHODOLOGY AND STATISTICAL METHODS

HARDCORE (COMPULSORY PAPER)

4:0:0=4 CREDITS

Objectives :

- To introduce the basics of research, scientific approaches, and steps like formulating hypotheses, preparing research proposals, and sampling techniques.
- To learn methods of data collection, analysis, and transforming data into structured formats for report writing and thesis preparation.
- To understand measurement theories, statistical methods for data representation, and correlation and regression techniques in criminology and forensic science research.
- To gain knowledge of statistical concepts like central tendency, variability, and hypothesis testing using parametric and non-parametric tests.

Course Based Outcomes :

- Students will understand how to design research projects, formulate and test hypotheses, and use effective sampling methods to collect data for criminological and forensic studies.
- Students will be able to collect, organize, and analyze data, draft well-structured reports, and prepare accurate bibliographies and references.
- Students will learn to use statistical tools like histograms, frequency polygons, and correlation methods to analyze data effectively and represent it graphically.
- Students will be able to calculate statistical measures like mean, median, and quartiles, perform hypothesis testing, and use advanced statistical methods like ANOVA and Chi-square tests in research.

Unit-1

Introduction to Research. Scientific Approaches to Criminological Researches. Hypothesis formulation and testing, preparation of research proposal. Survey of Literature methodology and Sampling Techniques;

Unit –2

Data collection, analysis structuring and transformation. Report Writing- Organization of the materials, Preliminaries. Drafting of the Thesis, Preparation of the Bibliography and references;

Unit-3

Theory of Measurement, Scale of Measurement, Statistical Methods for Various scales of Measurements & Importance in Criminology and Forensic Science. Frequency distribution; meaning and different methods of graphical representation (Histogram, Frequency Polygon Ogive Curves) Lorenz Curve and Gini Co-efficient. Linear Regression and Co-relation- Meaning,

Methods and uses of Scattered Diagram, Karl Pearson's Co-efficient of Co-relation, Spearman's rank co-relation.

Unit-4

Measures of Central Tendency- Mean, Mode, Measures of Variability, Co-efficient of Variation, Quartiles, Deciles and Percentiles, Median, Cumulative frequency, Correlation and regression; Testing of Hypothesis- Statistical Hypothesis, Type 1 and Type 2 errors, Critical Value, P-Value, c. Parametric Tests-tests of Hypothesis based on L,Z and F, One way ANOVA, Non-Parametric Test- Tests of Hypothesis based on Chi-Square Test, Sign Test and Kruskal Wallies one way ANOVA by ranks

Suggested Readings

1. Thesis and Assignment Writing. Anderson, J. Durston, B.H. and Poole.M (1970)
2. Guide to Scientific and Technical Writing- Cooray, P.G. (1992).
3. Statistics and Data Analysis- Davis, J.C. (1986).
4. Research Methodology, Methods and Techniques- Kothari, C.R. (1990).
5. Methods of Criminological Research- Victor Jupp.
6. Understandable Statistics- Concepts and Methods- Barse, Charles Henry and Barse Corrinne Pellillo (1987).
7. Research methods and Statistics- Ramchandra N. .
8. Statistics- Goode and Hatt.

II SEMESTER
MSc Criminology & Forensic Science

Course Title: FORENSIC DERMATOGLYPHICS AND OTHER IMPRESSIONS		Course Credits: 3
Course Code:	L-T-P per week: 3-0-0	
Total Contact Hours: 42		
Formative Assessment Marks: 30	Summative Assessment Marks: 70	

Core Course Content

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
	C1 Component	15
	C2 Component	15
	Total	30

FORENSIC DERMATOGLYPHICS AND OTHER IMPRESSIONS

HARDCORE (COMPULSORY PAPER)

3:0:0=3 CREDITS

Objectives:

- To understand the history, classification systems, and methods for developing and analysing fingerprints and palm prints, and their forensic significance.
- To explore the various types of biometric evidence, technologies used for data collection, and their applications in forensic identification.
- To explore the various types of biometric evidence, technologies used for data collection, and their applications in forensic identification.
- To explore the significance of lip prints and ear prints as forensic evidence, and the techniques used for their collection, analysis, and comparison.

Course Based Outcomes

- Students will be able to classify, develop, preserve, and analyse fingerprints and palm prints using traditional and modern forensic methods, including AFIS.
- Students will be able to identify, collect, and analyse various biometric data for forensic identification, including multibiometric systems and recent technological advancements.
- Students will acquire the skills to collect, cast, enhance, and analyse foot, footwear, and tyre impressions for forensic comparison and identification.
- Students will be able to collect, document, and analyse lip and ear prints, applying modern techniques for forensic comparison and identification.

UNIT 1: Unit 1 Fingerprints and Palm prints: History and development of Dermatoglyphics, formation of ridges, pattern types, pattern area. Classification of fingerprints- Henry's system of classification, single-digit classification, Extension of Henry's classification, filing, searching and fingerprint bureau. Composition of sweat, development of chance, latent, visible and plastic prints. Conventional methods of development of latent prints- fluorescent methods, magnetic powder method, fuming method, chemical method etc. Application of laser and other radiations to develop latent fingerprints, metal deposition method and development of latent prints on skin. Taking of fingerprints from living and dead person, preserving and lifting of fingerprints, photography of fingerprints. Ridge counting and ridge tracing, class and individual characteristics, various types of ridge characteristics. Comparison of palm prints on the basis of individual ridge characteristics. Automated Fingerprint Identification System (AFIS). Modern methodologies in fingerprinting.

UNIT 2: Biometrics: Biometric evidences such as finger impressions, retina, iris pattern, voice,

gait pattern, face recognition, 3D face recognition, automatic forensic dental identification, hand vascular pattern technology, Multibiometric systems, Recent developments, biometric databases.

UNIT 3: Foot/ Footwear/Tyre impressions: Importance, Gait pattern, Casting of footprints in different medium, electrostatic lifting of latent footprints. Taking of control samples. Collection, tracing, lifting, casting of impressions, enhancement of footwear impressions, analysis and comparison of foot impressions, moulds, identification characteristics.

UNIT 4: Other impressions: Lip prints, Ear prints and their significance, Nature, location, collection and evaluation of lip prints. Forensic Significance, photography, location, collection and evaluation, taking of control samples of footprints, lip prints and Ear prints for comparison. Modern techniques and developments.

Suggested Readings

1. Bridges, B.C; Criminal Investigation, Practical Fingerprinting, Thumb Impression, Handwriting expert Testimony, Opinion Evidence., Univ. Book Agency, Allhabad, 2000.
2. Mehta, M.K; Identification of Thumb impression & cross examination of Fingerprints, N.M. Tripathi Pub. Bombay, 1980.
3. Chatterjee, S.K; Speculation in Fingerprint Identification, Jantralekha printing Works, Kolkata, 1981.
4. Cowger James F; Friction Ridge Skin- Comparison & Identification of Fingerprints, CRC Press, NY, 1993.
5. Cossidy, M.J; Footwear Identification, Royal Canadian, Mounted Police, 1980.
6. Iannavelli, A.V; Ear Identification, Forensic Identification Series, Paramount, 1989.
7. Jain, A.K., Flynn, P. & Ross A.A., Handbook of Biometrics, Springer, New York 2008

II SEMESTER
MSc Criminology & Forensic Science

Course Title: CRIMINAL MAJOR ACTS		Course Credits: 3
Course Code:	L-T-P per week: 3-0-0	
Total Contact Hours: 42		
Formative Assessment Marks: 30	Summative Assessment Marks: 70	

Core Course Content

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
	C1 Component	15
	C2 Component	15
	Total	30

CRIMINAL MAJOR ACTS

HARDCORE PAPER

3:0:0=3 CREDITS

Objectives:

- To understand the key concepts and provisions of the Bhartiya Nyaya Samhitha, with a focus on its general exceptions and their implications in criminal law.
- To examine various criminal offenses under the Indian Penal Code, including those against persons and property, and the associated legal provisions related to abetment, criminal conspiracy, and homicide.
- To explore the provisions of the Bhartiya Nagarik Suraksha Sanhita, 2023, focusing on police powers, arrest procedures, and the legal processes involved in bail, appeals, and preventive actions.
- To understand the principles of evidence under the Bhartiya Sakshya Adhiniyam, 2003, with an emphasis on the relevancy of facts, admissions, confessions, and the burden of proof in criminal cases.

Course Based Outcomes

- Students will be able to explain the general exceptions outlined in the Bhartiya Nyaya Samhitha and apply them to real-world legal scenarios.
- Students will be able to analyze and differentiate between offenses such as culpable homicide, theft, extortion, and robbery, and understand their legal implications and punishments.
- Students will be able to outline the key police powers and procedural laws under the Bhartiya Nagarik Suraksha Sanhita, 2023, and apply them in the context of criminal justice.
- Students will be able to evaluate and apply the rules of evidence, including the admissibility of confessions, dying declarations, and expert testimony, in criminal investigations and trials.

UNIT-1 BHARTIYA NYAYA SAMHITHA

Introduction to Bhartiya Nyaya Samhitha Chapter-1 (Section 1 to 3),

General Exceptions (Section 14 to 44)

UNIT 2: Offence against Persons and property. Abetment (S. 41-60),

Criminal Conspiracy S.61 & 62), Offence against Women and Child (S.63 to 99)

Culpable Homicide and Murder (Ss.100 to 110 and 307.)

Hurt and Grievous Hurt (S. 114 to 125), Kidnapping and Abduction. (S.137 to -146).

Offences Against Property: Theft and Extortion (Ss.303-305 & 308);

Robbery and Dacoity (Ss.309 to 312); Misappropriation cheating and Criminal Breach of Trust. (Ss.314-323)

UNIT 3: BHARATIYA NAGARIK SURAKSHA SANHITA, 2023

Police powers of arrest, Provisions regarding Appeals, bail and bond, summons, warrants and proclamations. Preventive Action of the Police; Information to Police and their powers to investigate.

UNIT -4 BHARTIYA SAKSHYA ADHINIYAM-2003

Relevancy of Fact (S.3 to 10) Admissions, Confessions (15-27) and Dying Declarations. Of Experts (39-41), Oral (54-55) and Documentary Evidence 56-72).

Burden of proof of witness (S. 104-109)

Suggested Readings: -

1. The Bhartiya Nyaya Samhitha-2023
2. The Bhartiya Nagarik Suraksha Sanhita, 2023
3. The Bhartiya Sakshya Adhinyam-2003

II SEMESTER
MSc Criminology & Forensic Science

Course Title: FORENSIC DERMATOGLYPHICS AND CRIMINAL MAJOR ACTS		Course Credits: 4
Course Code:		L-T-P per week: 0-0-4
Total Contact Hours: 56		
Formative Assessment Marks: 30		Summative Assessment Marks: 70

Core Course Content

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
C1 Component		15
C2 Component		15
Total		30

PRACTICAL

FORENSIC DERMATOGLYPHICS AND CRIMINAL MAJOR ACTS

HARDCORE PAPER

0:0:4=4 CREDITS

1. Recording of Fingerprints & Palmprints
2. Identification of Patterns and Henry's Classification
3. Examination and identification of ridge characteristics
4. Development of fingerprints using Powder, Chemical and Gaseous methods.
5. Recording and examination of lip prints
6. Recording and examination of Ear prints
7. Tracing and examination of footprints, footwear impressions and tyre impressions.
8. Examination of gait patterns.
9. Recording and examination of bite marks
10. Preparation of Simulated Summons
 - a. To accused.
 - b. To witness.
 - c. To produce a document or a thing. Petty Offence
11. Preparation of Simulated Warrants.
 - a. Warrant of arrest to an accused.
 - b. Warrant of arrest to a witness.
 - c. Warrants of search a suspected place of deposit
 - d. Warrants of seizure.
12. Preparation of Proclamations.
 - a. To accused.
 - b. To witness.

II SEMESTER
MSc Criminology & Forensic Science

Course Title: FORENSIC ANTHROPOLOGY		Course Credits: 3
Course Code:	L-T-P per week: 3-0-0	
Total Contact Hours: 42		
Formative Assessment Marks: 30	Summative Assessment Marks: 70	

Core Course Content

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
	C1 Component	15
	C2 Component	15
	Total	30

FORENSIC ANTHROPOLOGY

SOFTCORE PAPER

3:0:0=3 CREDITS

Objectives:

- To explore the methods and techniques used in personal identification, including forensic anthropology, genetic traits, and the identification of living, recently deceased, and decomposed individuals.
- To understand the stages of human growth and development, and the factors affecting growth, as well as the various methods of assessing age in forensic studies.
- To study the techniques and methods involved in recovering and analyzing skeletal remains, including the estimation of age, sex, stature, and trauma analysis.
- To explore the role of dental evidence in forensic science, including age estimation, bite mark analysis, and the identification of individuals through odontological features.

Course Based Outcomes

- Students will be able to identify individuals based on somatometric, somatoscopic observations, genetic traits, and handle the identification of recently dead or decomposed bodies using forensic techniques.
- Students will be able to assess age through different methods like skeletal, dental, and morphological techniques, and understand how growth and development impact forensic identification.
- Students will be able to analyze skeletal remains, estimate biological characteristics such as age, sex, and stature, and assess trauma to determine the cause of death or injury.
- Students will be able to analyze and interpret dental evidence, estimate age from dental features, and handle bite mark evidence for forensic investigation.

UNIT 1: Personal Identification

Genesis and development of forensic anthropology. Personal identification of living persons- Identification through somatometric and somatoscopic observation, nails, occupation marks, scars, tattoo marks and deformities; handwriting and mannerisms. Genetic traits of forensic significance: Color blindness, ear lobe, brachydactyly, polydactyly, widow's peak, eye color, hair color, face form, frontal eminences, nasal profile, nasal tip, lips, chin form. Identification of the recently dead and decomposed bodies.

UNIT 2: Human Growth and Development

Major stages of human growth and development- Prenatal growth, Postnatal growth and their characteristics, Factor affecting growth- Genetic and Environmental. Methods of studying Human

Growth, Significance of age in growth studies Methods of assessing age-chronological age, dental age, skeletal age, secondary sex character age and morphological age.

UNIT 3 Forensic Morphometry of Skeletal Remains

Techniques for recovering skeletonized human remains. Laboratory analysis of skeletal and decomposing remains; maceration, skeletal analysis. Human and Animal remains. Bone fragments, Attribution of sex, estimation of age and reconstruction of stature from skeletal remains. Trauma analysis and identifying skeletal pathology. Antemortem, perimortem, post-mortem and pseudo mortem trauma. Pathological changes in bone. Establishment of partial and complete identity of skeletal material and dead bodies-morphometric techniques.

UNIT 4 Forensic Odontology: Tooth structure and growth. Estimation of age from odontological evidences. Population differences in size and morphology. Individualization of tooth pulp. Bite marks and its forensic significance. Photography, lifting and preservation of bite marks. Comparison and evaluation of bite mark evidences.

Suggested Readings

1. Reddy, V.R; Dental Anthropology, Inter-India Publication, New Delhi, 1985.
2. Singh, I.P. & Bhasin M.K; A manual of biological Anthropology, Kamla Raj Enterprises, New Delhi, 2004.
3. Kroeber; Anthropology, Oxford & IBH Publishing Company, New Delhi, 1972.
4. Pickering, R. & Bachman D; The use of Forensic Anthropology, CRC Press, Costa Rica, 2009.
5. Bose, N K; Anthropology, Narayana Press, Denmark, 1972.
6. James, R; Forensic examination of hair, Taylor & Francis, 2ND Ed. London, 1999.
7. Shubhra, G; Introduction to forensic examination, Selective Scientific Books, New Delhi, 2008
8. Michael, W. Haney, H.A. & Freas, L.E; The Forensic Anthropology Laboratory, CRC Press, 2008.
9. Eveleth, P.B. & Tanner, J.M; Worldwide Variation in Human Growth, Cambridge University Press, London, 1976.

II SEMESTER
MSc Criminology & Forensic Science

Course Title: CRIME ANALYSIS AND CRIME MAPPING		Course Credits: 3
Course Code:	L-T-P per week: 3-0-0	
Total Contact Hours: 42		
Formative Assessment Marks: 30	Summative Assessment Marks: 70	

Core Course Content

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
	C1 Component	15
	C2 Component	15
	Total	30

CRIME ANALYSIS AND CRIME MAPPING

SOFTCORE

3:0:0=3 CREDITS

Course Objectives

- To provide a foundational understanding of crime analysis, its theoretical concepts, scope, and applications in law enforcement.
- To explore various techniques of crime analysis, including behavioral, predictive, intelligence, and spatial analysis, and their role in understanding crime patterns.
- To introduce students to the principles and applications of crime mapping and the use of thematic and statistical crime maps for analyzing spatial and temporal crime data.
- To familiarize students with the use of Geographic Information Systems (GIS) technology for computerized crime mapping and its application in law enforcement.

Course Learning Outcomes

- Explain the fundamentals of crime analysis, including its theoretical foundations, scope, and practical applications in law enforcement.
- Apply techniques such as behavioral analysis, geographic profiling, predictive analysis, and demographic analysis to study and interpret crime patterns.
- Demonstrate knowledge of crime mapping, including different types of crime maps, and analyze spatial and temporal crime data using thematic and statistical maps.
- Utilize Geographic Information Systems (GIS) technology for computerized crime mapping and understand its components, functions, and data sources, including crime records and police FIR data.

UNIT I: Basics of Crime Analysis

- Fundamentals of Crime Analysis
- Theoretical foundations of crime analysis
- Scope and process of crime analysis, 60 steps for crime analysis manual
- Applied applications of crime analysis in law enforcement

UNIT II: Different Techniques of Crime Analysis

- Behavioural Analysis of Crime, Predictive Analysis and Neighbourhood Analysis
- Intelligence Analysis, Geographic Profiling Analysis, SARA Technique and Demographic Analysis
- Tactical Crime Analysis, Strategic Crime Analysis and Administrative Crime Analysis
- Analysis by Time and Space: Crime as a pattern of events arrayed in time and space ; Mapping as way of analyzing events arrayed in time and space

Unit III: Crime Mapping and Types of Crime Maps

- Crime incidents: Measuring time and space moments: Duration: structured time: distance as time: why map crime? types of map information: location, distance, direction, pattern Maps of crime: thematic maps: quantitative maps, qualitative types of thematic crime maps, statistical maps, point (pin) maps, choropleth maps, isoline maps, surface maps linear or flow maps.

Unit IV: Computerized Crime mapping: Application of Geographic information systems (GIS) technology

- Introduction to GIS principles: components and functions - Introduction to spatial data concepts: raster and vector-based GIS and data structures - Spatial data sources: land records, digitized maps, scanned images, digitized cross sections. Crime data sources -Crime records Bureau - Police FIR Records - Crime maps and privacy.

SUGGESTED READINGS:

1. Brantingham, P.J., and Brantingham, P.L (1981) *Environmental Criminology*, Prospect Heights, IL:Waveland Press Inc.
2. Brantingham, P.J., and Brantingham, P.L (1984) *Patterns of crime*, New York, NY: Macmillan
3. Harries, Keith. (1999) *Mapping Crime: Principles and Practice*. NCJ 178919. Washington, D.C.: U.S. Department of Justice, Office of Justice Programs, National Institute of Justice, 1999. <http://www.ncjrs.org/html/nij/mapping/>
4. Victor Goldsmith et.al (2000). *Analysing Crime patterns: Frontiers of Practice*. London: Sage Publications.
5. Paulsen and Robinson (2004), *Spatial Aspects of Crime: Theory and Practice*. Pearson Education, Inc.
6. Saddler, Dan (1997,1998) "*Why map crime?*", Mapping and Analysis for Public Safety program website <http://www.ojp.usdoj.gov/nij/maps>, National institute of justice, Washington.
7. The International Association of Crime Analysts (2004). *Exploring crime analysis: readings on essential skills*, South Carolina: Booksurge, LLC.

St. Philomena's College (Autonomous) Mysore.

I semester MSc- Final Examination _____ 2024

Subject: Criminology & Forensic Science

Title:

QP Code:

Time: 3 Hours

Max Marks: 70

PART – A

Answer ALL the questions:

10x2=20

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

PART B

Answer any FOUR of the following

4x5=20

- 11.
- 12.
- 13.
- 14.
- 15.
- 16.

PART C

Answer any THREE of the following

3x10=30

- 17.
- 18.
- 19.
- 20.
- 21.

