MAHATMA GANDHI UNIVERSITY

Kottayam, Kerala

Undergraduate Programmes (HONOURS)
2026 Admission Onwards

SYLLABUS			
SIGNATURE COURSE			
Name of the College	Mar Augusthinose College, Ramapuram Bazar P.O		
Faculty/ Discipline	Biotechnology		
Programme	BSc (Hons) Biotechnology		
Course Coordinator	Manesh Mathew		
Contributors	Dr. Sajeshkumar N K, Ms. Sheena John, Ms. Dona Maria John		
Course Name	Fundamentals of Forensic investigation		
Type of Course	DSE		
Specialization title	Forensic Investigation Methodologies		
Course Code	MG3DSEBTGA00		
Course Level	200		
Course Summary	This course provides basic knowledge about the principles, need, scope, concepts, and ethical responsibilities involved in forensic science and the role and responsibilities of a forensic scientist. The course also describes the process of crime scene investigation, different types of evidence such as physical, biological, and digital evidence and their importance in solving crimes and the fundamentals of various branches of forensic science and the legal aspects of forensic investigation.		
Semester	3	**Credits**	4
Course Details	**Learning Approach** / **Lecture** / **Total Hours** Credits / 4 / 60		
Pre-requisites, if any			

Course Outcomes (CO)

Number of COs		**4**	
CO No.	**Expected Course Outcome**	**Learning Domains ***	**PO No**
1	To remember and recall the basic concepts, principles, need, scope, and significance of forensic investigation, including ethics in forensic science and the role and responsibilities of a forensic scientist.	K, U	PO1, PO8
2	To understand the principles and procedures of crime scene investigation. And classify the types of forensic evidence, and explain the structure and role of crime detection agencies in India.	K, U	PO1, PO3
3	To study the major branches and specialized areas of forensic investigation.	K	PO1, PO3
4	To Gain knowledge about the legal aspects of forensic investigation	U	PO1, PO8

**Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)*

CO-PO Articulation Matrix

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	3	-	-	-	-	-	-	2	-	-
CO 2	3	-	2	-	-	-	-	-	-	-
CO 3	2	-	2	-	-	-	-	-	-	-
CO 4	2	-	-	-	-	-	-	2	-	-

'0' is No Correlation, '1' is Slight Correlation (Low level), '2' is Moderate Correlation (Medium level) and '3' is Substantial Correlation (High level).

Course Content

Content for Classroom transaction (Units)

Module	Units	Course Description	Hrs	CO No.
1	Forensic investigation– Introduction			
	1.1	Introduction to forensic investigation, Principles of Forensic investigation	3	["1"]
	1.2	Need, Scope, Concepts and Significance of Forensic investigation. Organization and functions of forensic laboratories	3	["1", "2"]
	1.3	Ethics in forensic investigation	2	["1"]
	1.4	Forensic Scientist: Role and Responsibilities	2	["1"]
2	Crime Scene Investigation			
	2.1	Principles of crime scene investigation Importance of Crime Scene Investigation	6	["2"]
	2.2	Steps in Crime Scene Investigation Secure the Crime Scene, Document the Crime Scene, Identify and Collect Evidence, Preserve Evidence, Analyze Evidence.	6	["2"]
	2.3	Types of Evidence Physical Evidence, Chemical evidence, Biological Evidence, Digital Evidence, Document Evidence, Pattern Evidence, Impression Evidence, Circumstantial Evidence, Transient Evidence	6	["2"]
	2.4	Crime Detection Agencies in India – Central Bureau of Investigation (CBI) National Investigation Agency (NIA) Criminal Investigation Department (CID) Enforcement Directorate (ED) Narcotics Control Bureau (NCB) Anti-Terrorism Squad (ATS) National Crime Records Bureau (NCRB) Supporting Entities Specialized Investigative Divisions	6	["2"]

Module	Units	Course Description	Hrs	CO No.
3	Branches of forensic investigation			
	3.1	Branches of forensic investigation Forensic Physics Forensic Biology Forensic Chemistry Digital Forensics Forensic psychology Forensic Medicine	6	["3"]
	3.2	Specialized Topics in Forensic investigation Forensic entomology Forensic botany Wildlife forensics Other specialized topics	6	["3"]
4	Legal Aspects of Forensic investigation			
	4.1	Admissibility of Evidence	3	["4"]
	4.2	Chain of Custody	3	["4"]
	4.3	Expert Testimony, Constitutional Constraints:	4	["4"]
	4.4	Legal Framework and other Legal Aspects	4	["4"]

Teaching and Learning Approach	**Classroom Procedure (Mode of transaction)** Lecturing, ICT Enabled Learning, Experiential learning, Participatory learning. Discussion.

Assessment Types	**MODE OF ASSESSMENT** Mode of Assessment: Theory **A. Continuous Comprehensive Assessment (CCA)** **• Theory – 30 Marks** Assignment, Oral Presentations, Quiz, Group Discussions, Internal exam **B. End Semester Evaluation (ESE)** **• Theory – 70 Marks** Assessment Methods – End Semester Examination Duration of Examination – 2.00 Hrs Pattern of examination for Theory – Non-MCQ Different parts of written examination – Part - A , B , C , D Answer Type: ◦ PART - A ◦ One word - (10 out of 10) – 10 × 1 = 10 ◦ PART - B ◦ Short answer - (5 out of 7) – 5 × 3 = 15 ◦ PART - C ◦ Short Essays - (5 out of 7) – 5 × 6 = 30 ◦ PART - D ◦ Essays - (1 out of 2) – 1 × 15 = 15

References

- Bertino, A. J., & Bertino, P. (2021). Forensic science: Fundamentals & investigations (3rd ed.). Cengage.
- Houck, M. M., & Siegel, J. A. (2015). Fundamentals of forensic science (3rd ed.). Academic Press.

- Textbook of Forensic Science – Nagesh Kumar Rao
- Fisher, B. A. J., & Fisher, D. R. (2022). Techniques of crime scene investigation (9th ed.). CRC Press.
- Saferstein, R., & Roy, T. (2021). Criminalistics: An introduction to forensic science (13th ed.). Pearson.

Suggested Readings

- Sharma, B. R. (2014). Forensic science in criminal investigation and trials (5th ed.). Universal Law Publishing Co.
- Bell, S. (Ed.). (2019). Forensic science: An introduction to scientific and investigative techniques (5th ed.). CRC Press.
- Maloney, M. S., Housman, D. G., & Gardner, R. M. (2014). Crime scene investigation procedural guide. CRC Press.
- Saferstein, R. (2011). Forensic science: From the crime scene to the crime lab (2nd ed.). Pearson.
- Parikh, C. K. (1999). Textbook of medical jurisprudence and toxicology (6th ed.). CBS Publishers & Distributors.

Affidavit

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2026 Admission Onwards

SYLLABUS			
SIGNATURE COURSE			
Name of the College	Mar Augusthinose College, Ramapuram Bazar P.O		
Faculty/ Discipline	Biotechnology		
Programme	BSc (Hons) Biotechnology		
Course Coordinator	Manesh Mathew		
Contributors	Dr.Sajeshkumar N K, Ms.Sheena John, Ms.Dona Maria John		
Course Name	Physical and Chemical aspects of Forensic Investigation		
Type of Course	DSE		
Specialization title	Forensic Investigation Methodologies		
Course Code	MG4DSEBTGA00		
Course Level	200		
Course Summary	The syllabus introduces forensic physics and chemistry, emphasizing the scientific analysis of evidence in criminal investigations. Forensic physics covers the study of physical evidences and the techniques for testing and analysing them. Forensic chemistry focuses on analyzing chemical evidences and the use of different methods for the analysis of the evidences.		
Semester	4	**Credits**	4
Course Details	**Learning Approach** / **Lecture** / **Total Hours** Credits / 4 / 60		
Pre-requisites, if any			

Course Outcomes (CO)

Number of COs		**4**	
CO No.	**Expected Course Outcome**	**Learning Domains ***	**PO No**
1	To Understand the basic principles, importance, and applications of Forensic Physics and Forensic Chemistry in crime scene investigation.	U	PO1, PO2, PO3
2	To Identify and analyze different types of physical evidence and explain the principles of analysis and to understand the role of forensic physicist	K	PO1, PO2, PO3
3	To analyze chemical Evidences.	K, U	PO1, PO2, PO3
4	To Understand analytical techniques for the examination and identification of forensic chemical samples and the role of Forensic Chemist.	K, U	PO1, PO2, PO3

**Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)*

CO-PO Articulation Matrix

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	2	3	2	-	-	-	-	-	-	-
CO 2	2	3	2	-	-	-	-	-	-	-
CO 3	2	3	2	-	-	-	-	-	-	-
CO 4	2	3	2	-	-	-	-	-	-	-

'0' is No Correlation, '1' is Slight Correlation (Low level), '2' is Moderate Correlation (Medium level) and '3' is Substantial Correlation (High level).

Course Content

Content for Classroom transaction (Units)

Module	Units	Course Description	Hrs	CO No.
1	Forensic Physics: Introduction, Importance and Types of Evidence Analyzed			
	1.1	Introduction to Forensic Physics	3	["1"]
	1.2	Types of Evidence Analyzed: Pattern Evidence (Imprints & Impressions), Fracture and Physical Matches, Ballistics and Projectiles, Trace Evidence (Small Clues), Mechanical/Material Failures, Conditional/Transient Evidence:	4	["2"]
	1.3	Importance of Forensic Physics Applications of Forensic Physics. Role of forensic Physicist	3	["1", "2"]
2	Forensic Physics: Techniques Used in Forensic Physics			
	2.1	Material Analysis: Analyzing the physical properties of materials, such as glass or paint, to determine their origin and composition. Microscopy & Imaging	4	["2"]
	2.2	Footwear and Tire Track Comparison: Comparing footwear and tire tracks found at the crime scene to know individuals or vehicles. Forensic Acoustics, Accident Reconstruction	4	["2"]
	2.3	Trajectory Analysis: Analyzing the trajectory of bullets or other projectiles to determine the location of the shooter.	4	["2"]
	2.4	Ballistics Testing: Testing firearms and ammunition to determine their characteristics and match them to evidence.	5	["2"]
	2.5	Fracture Analysis Glass Examination Sound and Voice Analysis	4	["2"]
3	Forensic Chemistry: Introduction, Importance and Types of Evidence Analyzed			
	3.1	Introduction to forensic chemistry Definition, scope, History, development and Importance of Forensic Chemistry.	3	["1"]
	3.2	Types of Evidence Analyzed: illegal drugs and pharmaceuticals Analysis of blood, urine, or tissue for toxins, poisons, or drugs that indicate cause of death, Glass, Fiber & Textiles, Paint Chips, Gunshot Residue (GSR), Soil/Dust	4	["3"]
	3.3	Applications of Forensic Chemistry Role of a forensic chemist	2	["1", "4"]

Module	Units	Course Description	Hrs	CO No.
4	Forensic Chemistry: Techniques Used in Forensic Chemistry			
	4.1	Various techniques for the analysis of Chemical Samples	4	["4"]
	4.2	Spectroscopy: Introduction. Types of Spectroscopic techniques used UV–Visible Spectroscopy Infrared (IR) Spectroscopy Atomic Absorption Spectroscopy Mass Spectrometry	4	["4"]
	4.3	Chromatography-Introduction. Types of chromatographic techniques used. Paper Chromatography Thin Layer Chromatography Gas Chromatography High-Performance Liquid Chromatography	5	["4"]
	4.4	Color Tests Marquis Test, Scott Test, Duquenois–Levine Test Immunoassays	3	["4"]
	4.5	Wet Chemical Analysis Toxicological Analysis	4	["4"]

Teaching and Learning Approach	Classroom Procedure (Mode of transaction) Lecturing, ICT Enabled Learning, Experiential learning, Participatory learning. Discussion.

Assessment Types	
	MODE OF ASSESSMENT Mode of Assessment: Theory
	A. Continuous Comprehensive Assessment (CCA) **• Theory – 30 Marks** Case study report, Assignment, Oral Presentations, Quiz, Group Discussions, Internal Exams.
	B. End Semester Evaluation (ESE) **• Theory – 70 Marks** Assessment Methods – End Semester Examination Duration of Examination – 2.00 Hrs Pattern of examination for Theory – Non-MCQ Different parts of written examination – Part - A , B , C , D Answer Type: ◦ PART - A ◦ One word - (10 out of 10) – 10 × 1 = 10 ◦ PART - B ◦ Short answer - (5 out of 7) – 5 × 3 = 15 ◦ PART - C ◦ Short Essays - (5 out of 7) – 5 × 6 = 30 ◦ PART - D ◦ Essays - (1 out of 2) – 1 × 15 = 15

References

- Holubová, R., Straus, J., & Slezáková, J. (2022). Forensics and physics. Cambridge Scholars Publishing
- Hunter, W. (2014). Solving crimes with physics. Mason Crest Publishers.
- Khan, J. I., Kennedy, T. J., & Christian, D. R., Jr. (2012). Basic principles of forensic chemistry. Humana Press.
- Houck, M. M., & Siegel, J. A. (2015). Fundamentals of forensic science (3rd ed.). Academic Press.

- Skoog, D. A., Holler, F. J., & Crouch, S. R. (2018). Principles of instrumental analysis (7th ed.). Cengage Learning.

Suggested Readings

- Sharma, B. R. (2020). Forensic science in criminal investigation & trials (6th ed.). LexisNexis.
- Fraser, J. (2020). Forensic science: A very short introduction (2nd ed.). Oxford University Press.
- Elkins, K. M. (2018). Introduction to forensic chemistry. CRC Press.
- GEvans-Nguyen, K. (2022). Forensic chemistry. American Chemical Society.
- Bertino, A. J., & Bertino, P. (2021). Forensic science: Fundamentals & investigations (3rd ed.). Cengage Learning

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2026 Admission Onwards

SYLLABUS			
SIGNATURE COURSE			
Name of the College	Mar Augusthinose College, Ramapuram Bazar P.O		
Faculty/ Discipline	Biotechnology		
Programme	BSc (Hons) Biotechnology		
Course Coordinator	Manesh Mathew		
Contributors	Dr. Sajeshkumar N K, Ms. Sheena John, Ms. Dona Maria John		
Course Name	Digital Forensics and Forensic Pathology		
Type of Course	DSE		
Specialization title	Forensic Investigation Methodologies		
Course Code	MG5DSEBTGA00		
Course Level	300		
Course Summary	The syllabus introduces digital forensics and forensic pathology, focusing on the collection, analysis, and interpretation of evidence for investigations. Digital forensics covers evidence collection from different sources and the use of different Techniques to extract and examine relevant digital information. Forensic pathology involves investigating types of deaths using different methods. Overall, the course equips students with the knowledge and skills to analyze digital and biological evidence to support legal investigations and determine causes of death.		
Semester	5	**Credits**	4
Course Details	**Learning Approach** / **Lecture** / **Total Hours** Credits / 4 / 60		
Pre-requisites, if any			

Course Outcomes (CO)

Number of COs		**4**	
CO No.	**Expected Course Outcome**	**Learning Domains ***	**PO No**
1	Analyze the fundamental concepts, importance, and applications of Digital Forensics and Forensic Pathology in criminal investigations.	A	PO1, PO2, PO3
2	Identify and analyze different types of digital evidences and apply techniques to analyse the evidences.	An	PO1, PO2, PO3
3	To study the types of deaths Investigated in forensic pathology	E	PO1, PO2
4	Study and apply forensic pathology techniques.	A	PO1, PO2

**Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)*

CO-PO Articulation Matrix

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	3	3	2	-	-	-	-	-	-	-
CO 2	2	3	2	-	-	-	-	-	-	-
CO 3	2	3	-	-	-	-	-	-	-	-
CO 4	2	3	-	-	-	-	-	-	-	-

'0' is No Correlation, '1' is Slight Correlation (Low level), '2' is Moderate Correlation (Medium level) and '3' is Substantial Correlation (High level).

Course Content

Content for Classroom transaction (Units)

Module	Units	Course Description	Hrs	CO No.
1	Introduction to Digital Forensics			
	1.1	Introduction to digital forensics Basics of Digital Forensics	4	["1"]
	1.2	Types of Evidence Analyzed: Computer Files, Email and Communication Records, Network Logs, Mobile Device Data.	5	["2"]
	1.3	Applications of Digital Forensics 1. Cybercrime Investigation: Investigating crimes committed using computers, networks, and other digital technologies. 2. Data Recovery: Recovering deleted, corrupted, or damaged digital data. 3. Network Forensics: Analyzing network traffic and logs to identify security breaches or other malicious activity. 4. Mobile Device Forensics: Analyzing mobile devices, such as smartphones and tablets, to extract evidence	4	["1"]
2	Techniques Used in Digital Forensics			
	2.1	Digital Evidence Collection: Collecting digital evidence from computers, networks, and other digital devices.	6	["2"]
	2.2	Data Carving: Extracting specific data from a larger dataset.	5	["2"]
	2.3	File System Analysis: Analyzing file systems to identify deleted files, file metadata, and other relevant information.	5	["2"]
	2.4	Network Traffic Analysis: Analyzing network traffic to identify security breaches or other malicious activity.	4	["2"]
3	Introduction to forensic pathology			
	3.1	Introduction to forensic pathology Definition and Objectives of Forensic Pathology Basic Steps in a Forensic pathology Investigation	4	["1"]
	3.2	Types of Deaths Investigated 1. Homicide 2. Suicide 3. Accidental Death 4. Natural Death	4	["3"]
	3.3	Importance of Forensic Pathology Applications of Forensic Pathology	3	["1"]

Module	Units	Course Description	Hrs	CO No.
4	Techniques Used in forensic pathology			
	4.1	External Examination, Autopsy	3	["4"]
	4.2	Histopathology	3	["4"]
	4.3	Toxicology Analysis	2	["4"]
	4.4	Radiology, Other techniques	3	["4"]
	4.5	DNA Analysis, Fingerprint Examination, Serology	5	["4"]

Teaching and Learning Approach	**Classroom Procedure (Mode of transaction)** Lecturing, ICT Enabled Learning, Experiential learning, Participatory learning. Discussion.

Assessment Types	**MODE OF ASSESSMENT** Mode of Assessment: Theory **A. Continuous Comprehensive Assessment (CCA)** **• Theory – 30 Marks** Assignment, Oral Presentations, Quiz, Group Discussions, Internal examination. **B. End Semester Evaluation (ESE)** **• Theory – 70 Marks** Assessment Methods – End Semester Examination Duration of Examination – 2.00 Hrs Pattern of examination for Theory – Non-MCQ Different parts of written examination – Part - A , B , C , D Answer Type: ∘ PART - A ∘ One word - (10 out of 10) – 10 × 1 = 10 ∘ PART - B ∘ Short answer - (5 out of 7) – 5 × 3 = 15 ∘ PART - C ∘ Short Essays - (5 out of 7) – 5 × 6 = 30 ∘ PART - D ∘ Essays - (1 out of 2) – 1 × 15 = 15

References

- DiMaio, V. J. M., & DiMaio, D. (1989). Forensic pathology. Elsevier Science Publishing.
- Carrier, B. (2005). File system forensic analysis. Addison-Wesley Professional.
- Nelson, B., Phillips, A., & Steuart, C. (2019). Guide to computer forensics and investigations (6th ed.). Cengage Learning.
- Luttgens, J. T., Pepe, M., & Mandia, K. (2014). Incident response & computer forensics (3rd ed.). McGraw-Hill Education.
- Payne-James, J., & Jones, R. (Eds.). (2020). Simpson's forensic medicine (14th ed.). CRC Press.
- Saukko, P., & Knight, B. (2016). Knight's forensic pathology (4th ed.). CRC Press.
- EC-Council. (2010). Computer forensics: Investigating network intrusions and cyber crime. Cengage Learning.

Suggested Readings

- Subrahmanyam, B. V. (2019). Parikh's textbook of medical jurisprudence, forensic medicine and toxicology: For classrooms and courtrooms (8th ed.). CBS Publishers & Distributors.
- Spitz, W. U., Diaz, F. J., & Fisher, R. S. (2020). Spitz and Fisher's medicolegal investigation of death: Guidelines for the application of pathology to crime investigation (5th ed.). Charles C Thomas Publisher
- Bommisetty, S., Tamma, R., & Mahalik, H. (2014). Practical mobile forensics. Packt Publishing.

- Casey, E. (2011). Digital evidence and computer crime: Forensic science, computers, and the Internet (3rd ed.). Academic Press.
- Klaassen, C. D. (Ed.). (2019). Casarett and Doull's toxicology: The basic science of poisons (9th ed.). McGraw Hill.

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Faculty/ Discipline	Biotechnology		
Programme	BSc (Hons) Biotechnology		
Course Coordinator	Manesh Mathew		
Contributors	Dr. Sajeshkumar N K, Ms. Sheena John, Ms. Dona Maria John		
Course Name	Forensic Biology and Psychology		
Type of Course	DSE		
Specialization title	Forensic Investigation Methodologies		
Course Code	MG6DSEBTGA00		
Course Level	300		
Course Summary	Forensic biology focuses on analysing biological evidences, while also addressing ethical issues and limitations in evidence interpretation. Various techniques such as serology, DNA analysis, toxicology, trace analysis, and various modern tools and wildlife databases are used to enhance investigation accuracy. Additionally, forensic psychology examines human behaviour in legal contexts through evaluations and specialized techniques to support criminal profiling, legal decisions, and investigative processes.		
Semester	6	**Credits**	4
Course Details	**Learning Approach** / **Lecture** / **Total Hours**: Credits / 4 / 60		
Pre-requisites, if any			

Course Outcomes (CO)

Number of COs		**4**	
CO No.	**Expected Course Outcome**	**Learning Domains ***	**PO No**
1	Analyse the principles of forensic biology, including the identification, collection, and analysis of human, animal, and plant-based biological evidence in criminal investigations.	An	PO1, PO2, PO3
2	Evaluate ethical issues, limitations, and reliability of biological evidence, while applying techniques such as DNA analysis, serology, toxicology, and trace examination.	E	PO1, PO2, PO8
3	Apply modern investigative tools and methods—such as GIS, GPS, drone imaging, and wildlife forensic techniques—to detect crimes including poaching and illegal wildlife trade.	A	PO2, PO3, PO6
4	Evaluatehuman behavior in legal contexts using forensic psychology concepts, techniques, and evaluations to support criminal investigations and judicial processes.	E	PO1, PO2, PO4

**Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)*

CO-PO Articulation Matrix

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	3	2	2	-	-	-	-	-	-	-
CO 2	3	2	-	-	-	-	-	2	-	-
CO 3	-	3	2	-	-	2	-	-	-	-
CO 4	2	2	-	1	-	-	-	-	-	-

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Course Content

Content for Classroom transaction (Units)

Module	Units	Course Description	Hrs	CO No.
1	Introduction to Forensic biology			
	1.1	Introduction to Forensic Biology Definition and Scope of Forensic Biology History and Development	3	["1"]
	1.2	Legal admissibility of forensic biological evidence Expert testimony in court	4	["2"]
	1.3	Branches of Forensic Biology Forensic Serology Forensic DNA Analysis Forensic Anthropology Forensic Entomology Forensic Botany Forensic Zoology Forensic Microbiology	2	["1"]
2	Evidences Analyzed in Forensic Biology			
	2.1	Human Evidence Blood., Saliva, Hair (with root), Skin Cells (Touch DNA), Other Bodily Fluids/Tissues, Bones and Teeth, Nail Scrapings, Semen	4	["1"]
	2.2	Zoological Evidence Biological Samples, Trace Evidence (Hair & Fur), Hard Tissue Evidence, Waste Material, Products & Derivatives, Whole Organisms/Body Parts, Entomology evidences	5	["1"]
	2.3	Botanical Evidences- Plant Anatomy & Morphology Evidences Pollen and Spores (Palynology), Wood Fragments and Timber, Leaves, Seeds, and Fruits, Aquatic Botanical Evidence (Limnology), Roots and Stems, Botanical Trace Evidence	4	["1"]
	2.4	Collection and Preservation of Evidence Methods of collection of biological samples Preservation, packaging and transportation of forensic samples Chain of custody Prevention of contamination	6	["1"]

Module	Units	Course Description	Hrs	CO No.
3	Techniques Used in Forensic Biology			
	3.1	Drug analysis, Forensic toxicology, Trace Analysis, Blood Analysis, Bloodstain Pattern Analysis, Hair or fibre analysis, Tissue and epithelial cell analysis	6	["2"]
	3.2	Forensic Serology: Identification of body fluids (blood, semen, saliva), Antigen–antibody reactions, Secretor and non-secretor status DNA analysis: STR Analysis (Short Tandem Repeats), Mitochondrial DNA (mtDNA) analysis, DNA Phenotyping, DNA barcoding Wildlife DNA databases (e.g., WILDNET, CITES DNA tech)	5	["2", "3"]
	3.3	Poaching indicators & field investigation methods, Use of camera traps, GIS, GPS & drone imaging Veterinary pathology in wildlife crime	6	["3"]
	3.4	Identification of protected species (Schedule I–IV, IUCN status), Illegal wildlife trade: ivory, skin, bones, horns, feathers	5	["3"]
4	Basics of Forensic Psychology			
	4.1	Introduction to forensic psychology Definition Objectives of Forensic Psychology Scope of Forensic Psychology Areas of Forensic Psychology Types of Evaluations	4	["4"]
	4.2	Techniques Used in Forensic Psychology Psychological Interview Clinical Observation Psychological Testing Risk Assessment Forensic Case History Analysis	3	["4"]
	4.3	Importance of Forensic Psychology Applications of Forensic Psychology	2	["4"]
	4.4	Role of a Forensic Psychologist	1	["4"]

Teaching and Learning Approach	**Classroom Procedure (Mode of transaction)** Lecturing, ICT Enabled Learning, Experiential learning, Participatory learning. Discussion.

Assessment Types

MODE OF ASSESSMENT
Mode of Assessment: Theory

A. Continuous Comprehensive Assessment (CCA)
• Theory – 30 Marks
Assignment, Oral Presentations, Quiz, Group Discussions, I V report, Internal Exam

B. End Semester Evaluation (ESE)
• Theory – 70 Marks
Assessment Methods – End Semester Examination
Duration of Examination – 2.00 Hrs
Pattern of examination for Theory – Non-MCQ
Different parts of written examination – Part - A , B , C , D
Answer Type:
- PART - A
- One word - (10 out of 10) – 10 × 1 = 10
- PART - B
- Short answer - (5 out of 7) – 5 × 3 = 15
- PART - C
- Short Essays - (5 out of 7) – 5 × 6 = 30
- PART - D
- Essays - (1 out of 2) – 1 × 15 = 15

References

- Houck, M. M., & Siegel, J. A. (2015). Fundamentals of forensic science (3rd ed.). Academic Press.
- Saferstein, R. (2018). Criminalistics: An introduction to forensic science (12th ed.). Pearson.
- Saferstein, R., & Roy, T. (2021). Forensic science: From the crime scene to the crime lab (4th ed.). Pearson.
- Bock, J. H., & Norris, D. O. (1997). Forensic plant science. Academic Press.
- Linacre, A. (Ed.). (2013). Forensic approaches to wildlife crimes. CRC Press.
- Cooper, J. E., & Cooper, M. E. (2007). Introduction to wildlife forensic investigation. Blackwell Publishing.
- Butler, J. M. (2005). Forensic DNA typing: Biology, technology, and genetics of STR markers (2nd ed.). Elsevier Academic Press.

Suggested Readings

- Bartol, C. R., & Bartol, A. M. (2021). Introduction to forensic psychology: Research and application (6th ed.). SAGE Publications.
- Davies, G. M., & Beech, A. R. (Eds.). (2018). Forensic psychology: Crime, justice, law, interventions (3rd ed.). Wiley Blackwell.
- Inman, K., & Rudin, N. (2001). An introduction to forensic DNA analysis. CRC Press.
- Levine, B. (Ed.). (2013). Principles of forensic toxicology (4th ed.). American Association for Clinical Chemistry Press.
- Li, R. (2015). Forensic biology (2nd ed.). CRC Press.

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