



University of Kerala

Discipline	PHYSICS				
Course Code	UK2MDCPHY103				
Course Title	FOUNDATIONS IN FORENSIC SCIENCE				
Type of Course	MDC				
Semester	II				
Academic Level	100 – 199				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours/Week
	3	3 Hrs	-	-	3
Pre-requisites					
Course Summary	<p>The "Foundations in Forensic Science" course is a comprehensive and interdisciplinary exploration of key areas in forensic investigation. Through this course, students can delve into the fundamental principles and techniques essential to modern forensic science. Beginning with an overview of forensic science's role in crime investigation, students progress to mastering crime scene management, evidence collection, and preservation. They then explore the analysis of various types of physical evidence and their forensic significance. The course culminates into practical experiences through some activity-oriented learning.</p>				

BOOKS FOR STUDY

1. Criminalistics: An Introduction to Forensic Science, Richard Saferstein, (12/e), Pearson Education Inc.
2. Forensic Science in Criminal Investigation and trials, Dr. BR.Sharma, (4/e), Universal Law Publishing Co. Pvt. Ltd.

BOOKS FOR REFERENCE:

1. Crime Investigation, Paul L Kirk, Wiley
2. Solving Crimes with Physics, Carla Miller Nozigia, Mason Crest Publishers
3. Beginners Forensic Science, Dr. C. Hegde & Dr. R. Shekhar, Himalaya Publishing House.
4. Crime Scene Forensics: A Scientific Method Approach, Robert C Shaler, CRC Press
5. Fundamentals of Forensic Science, Max M. Houck & Jay A. Siegel, Elsevier Science.

DETAILED SYLLABUS: THEORY

Module	Unit	Content	Hrs	CO No
I	SCIENCE IN CRIMINAL JUSTICE SYSTEM [Sec 1,2,4,5 Book 1 Chapter 1; sec 3 Book 2, Chapter 1]		9	
	1	Definition and Scope of Forensic Science	1	1
	2	History and Development of Forensic Science	1	1
	3	Basic principles of Forensic Science	2	1
	4	Services of Criminal Laboratories - Basic Services Provided by Full-Service Crime laboratories	2	1
	5	Functions of Forensic Scientist - Analysis of Physical Evidence, The Importance of Physical Evidence, Determining Admissibility of Evidence, Providing Expert Testimony.	3	1
II	THE CRIME SCENE [Book 1, Chapter 2]		9	
	6	Processing the Crime Scene - Securing and Isolating the Crime Scene, Recording the Crime Scene, Conducting a Systematic Search for Evidence.	5	2
	7	Collecting and Packaging of Physical Evidence - Collecting Physical Evidence, Handling Evidence, Packaging Evidence.	2	2
	8	Maintaining the Chain of Custody - Obtaining Standard/Reference Samples, Submitting Evidence to the Laboratory.	1	2
	9	Ensuring the Crime Scene Safety	1	2

III	PHYSICAL EVIDENCE [Book 1, Chapter 3 (sec 10 & 11), Chapter 4 (sec 12)]		9	
	10	Common Types of Physical Evidence	1	3
	11	The Significance of Physical Evidence -Identification, Comparison, Individual Characteristics, Class Characteristics, Assessing the Value of Physical Evidence, Cautions and Limitations in Dealing with Physical Evidence.	5	3
	12	Crime Scene Reconstruction - Principles of Crime- Scene Reconstruction, Personnel Involved in Reconstruction.	3	3
IV	MICRO-TRACES [Book 2, Chapter 17]		9	4
	13	Importance	1	4
	14	Nature -Plant Materials, Dust, Fibres, Polymers, Minerals, Glass, Paint, Soil	1	4
	15	Location - The Culprit, Victim, Crime Scene, Weapon, Vehicle, Location, Techniques.	1	4
	16	Collection - Handpicking, Taping, Tacuuming, Dissolving and Washing, Scraping.	1	4
	17	Forensic Problems	1	4
	18	Evaluation -Tools and Techniques, Microscopy	2	4
	19	Example of a Specific Trace Evidence - Glass - Importance, Nature, Location, Evaluation.	2	4
V	FORENSIC SCIENCE IN PRACTICE		9	
	20	Demonstration of a mock crime scene with at least three micro traces	1	5
	21	Visit to State/Regional/District Forensic Science Laboratories, Interaction with Forensic Scientist with a questionnaire OR Review of a movie	5	5
	22	Mini project based on an intriguing criminal case: Any one from the following three 1. Case presentation: Create a multimedia presentation	3	5

		2. Investigative report: Write a detailed investigative report including evidence collection. 3. Reflective essay: Write a reflective essay, discussing what was learned and potential improvement for future improvements.		
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COURSE OUTCOMES

No.	Upon completion of the course the graduate will be able to	Cognitive Level	PSO addressed
CO-1	Describe the services of a typical comprehensive crime laboratory and forensic scientist in a criminal justice system	R, U	2, 3
CO-2	Describe the various measures taken while securing, recording and searching the crime scene as well as describe the proper techniques for packaging common types of physical evidence.	R, U	2, 3
CO-3	Summarize the common types and significance of physical evidence encountered at crime scenes as well as the principles of crime scene reconstruction.	R, U	2, 3, 6
CO-4	Demonstrate the physical evidence related to crimes involving microtraces.	R, U, Ap	2,3, 7
CO-5	Demonstrate the ability to apply forensic science concepts through practical engagement with mock crime scenes, develop professional insights through visits to forensic science labs and effectively communicate findings.	R, U, Ap, An	2,3, 7

R-Remember, U-Understand, Ap-Apply, An-Analyse, E-Evaluate, C-Create