

# NEHRU ARTS AND SCIENCE COLLEGE

(An Autonomous Institution affiliated to Bharathiar University) (Reaccredited with "A" Grade by NAAC, ISO 9001:2015 & 14001:2004 Certified Recognized by UGC with 2(f) &12(B), Under Star College Scheme by DBT, Govt. of India) Nehru Gardens, Thirumalayampalayam, Coimbatore - 641 105, Tamil Nadu.



# **REGULATIONS, CURRICULUM & SYLLABUS**

# **B. Sc. FORENSIC SCIENCE**

Semester I to VI

**Effective from 2022–2023** 

# CURRICULUM



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### **B.Sc. FORENSIC SCIENCE**

#### **Programme Outcomes:**

- At the end of the course, the learners will be able:
- **PO1**: To demonstrate academic proficiency in the core area of forensic science.
- PO2: To use the scientific techniques of forensic science in investigations.
- PO3: To systematically and scientifically collect evidences from crime scene
- PO4: To analyse evidences using scientific techniques and form opinion based on it.
- **PO5**: To aid and advice the criminal justice system in investigation, trial, correctional administration and victim support.
- **PO6**: To develop skillset required for contributing towards the research and development in forensic Science.
- PO7: Utilizing the existing techniques of forensic science in private investigations.
- PO8: Understanding the emerging trends in Forensic Science and its applications in industrial context.

#### **Programme Specific Outcomes:**

- PSO1: Understand the concept of criminal justice system, principles of crime & investigation.
- **PSO2**: Understand the various techniques used in the analysis of evidences obtained as a byproduct of crime
- **PSO3**: Develop skill to design and conduct experiments for the analysis of evidences based on the protocols provided by authorized agencies.
- PSO4: Architect skill sets in assisting investigations, trials and correctional administration.

PSO5: Utilize the laboratory skills in industrial applications



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### SCHEME OF EXAMINATION

### **B. Sc Forensic Science**

### (Programme code : UFR)

(Applicable to all the students admitted during the academic year 2022-2023 onwards)

ter	t			ional veek	on of ation	Exa	ion	lits					
Semes	Par	Course code	Name of the course	Instruct Hours/v	Duratic Examin	CIA	ESE	Total	Credi				
	Ι	22U1TAM101/ 22U1HIN101/ 22U1MAL101/ 22U1FRN101	Elanthamizh Rachnathmak Hindi Kadhayum Samskaravum Le Francais Fondamental - 1	5	3	50	50	100	4				
	II	22U2ENG101	Professional English I	5	3	50	Examination Marks $329$ $20$ ETAESETotal $29$ $20$ 50501004						
		22U3FRC101	Core Paper I - General Forensic Science	6	3	50	50	100	4				
Ι	III	22U3FRP102	Core Paper II - Crime Scene Management Practical	6	3	50	50	100	4				
		22U3FRA101	Allied Paper I - Forensic Chemistry	5	3	50	50	100	4				
	13.7	21U4ENV101	@Ability Enhancement Compulsory Course : Environmental Studies	2	3	50	-	50	2				
	IV	22U4HVY201	Value Education : Human Values and Yoga Practice	1	-	-	-	-	-				
				30				550	22				
	Ι	22U1TAM202/ 22U1HIN202/ 22U1MAL202/ 22U1FRN202	Pynthamizh Sanchar Hindi Novelum Bhashaapadanavum Le Francais Fondamentale - II	5	3	50	50	100	4				
	II	22U2ENG202	Professional English II	5	3	50	50	100	4				
II		22U3FRC203	Core Paper III - Ballistics and Tool Marks	6	3	50	50	100	4				
	III	22U3FRP204	Core Paper IV - Ballistics and Tool Marks Practical	6	3	50	50	100	4				
		22U3FRA202	Allied Paper II - Instrumental Techniques I	5	3	50	50	100	4				
	IV	21U4HRC202	@Ability Enhancement Compulsory Course : Human Rights and Constitution of India	2	3	50	-	50	2				
		22U4HVY201	@Value Education : Human Values and Yoga Practice	1	2	50	-	50	2				
				30				600	24				

		22U1TAM303/	Arunthamizh						
	т	22U1HIN303/	Sahityak Hindi	5	2	50	50	100	1
	1	22U1MAL303/	Kavithayum Smaranayum	3	5	30	30	100	4
		22U1FRN303	Le Francais General - III						
	II	22U2ENG303	Communicative English - I	5	3	50	50	100	4
		22U3FRC305	Core Paper V - Forensic Physics	5	3	50	50	100	4
	ш	22112ED D206	Core Paper VI - Forensic Physics	1	3	50	50	100	4
	111	2203FKF300	Practical	4	5	50	50	100	4
		22U3FRA303	Allied Paper III - Forensic Biology	4	3	50	50	100	4
III		22U4FRS301	Skill Based Paper I - Introduction to Digital Evidences	3	2	30	45	75	3
		22U4NM3BT1/	# @ Basic Tamil - I						
		22U4NM3AT1/	## Advanced Tamil - I						
		22U4NM3CAF/	* NME: Consumer Affairs /	2	3	50		50	2
	IV	22U4NM3GST/	Gender Sensitization /						
		22U4NM3WRT	Women's Rights						
		SBOEC	Skill Based Open Elective Course -Extra	2	3	_	50	50	2
		<b>BBOLC</b>	Departmental Course	2	5		50	50	
		22U4FRVALC	**Skill Enhancement Add on course -	_	-	_	_	_	_
			Institute Industry Linkage					~==	
				30				675	27
		22UTTAM404/	Muththamizh						
	Ι	22UTHIN404/	Prayogik Hindi Drigugkalag Saghithugan	5	3	50	50	100	4
		2201MAL404/ 22111EDN404	Disyakalaa Saaniinyam						
	п	22U1FKIN404 22U2ENIC404	Le Francias General - Iv	5	2	50	50	100	4
	11	2202ENG404	Core Bener VII – Biometrics and	3	5	- 30	30	100	4
		22U3FRC407	Impression Analysis	5	3	50	50	100	4
			Core Paper VIII - Biometrics and						
	III	22U3FRP408	Impression Analysis Practical	4	3	50	50	100	4
			Allied Paper IV - Instrumental						
IV		22U3FRA404	Techniques - II	4	3	50	50	100	4
			Skill Based Paper II - Research	2	2	20	4.7		2
		22U4FRS402	methodology and Statistics	3	3	30	45	75	3
		22U4NM4BT2/	# @Basic Tamil - II						
		22U4NM4AT2/	##Advanced Tamil - II	2	3	5	0	50	2
	IV	21U4NM4GEN	General Awareness						
		VBOEC	Value Based Open Elective Course - Intra	2	3	_	50	50	2
		VDOLC	School Course	2	5	_	50	50	2
		22U4FRVALC	**Skill Enhancement	_	-	-	-	_	Grad
			Add on course- Institute Industry Linkage					~==	e
				30				675	27
		22U3FRC509	Core Paper IX - Serology and DNA Typing	5	3	50	50	100	4
		22U3FRC510	Core Paper X - Forensic Toxicology	5	3	50	50	100	4
		22U3FRT511	Core Paper XI - Outdoor Training	5	3	50	50	100	4
	III		Core Paper XII - Serology and						
		22U3FRP512	Toxicology Practical	5	3	50	50	100	4
V		22U3FRE501/							1
v		22U3FRE502/	Discipline Specific Elective Paper - I	6	3	50	50	100	4
		22U3FRE503							
	IV	22U4FR\$503	Skill Based Paper III - Law for Forensic	4	3	30	45	75	3
	- '	220 11 10505	Science						
				30				575	23

		22U3FRC613	Core Paper XIII - Questioned Document Examination	6	3	50	50	100	4		
		22U3FRP614	Core Paper XIV- Questioned Document Examination Practical	6	3	50	50	100	4		
VI	III	22U3FRT604/ 22U3FRT605/ 22U3FRT606	Discipline Specific Elective Paper - II	6	3	50	50	100	4		
		22U3FRV607/ 22U3FRE608/ 22U3FRE609	Discipline Specific Elective Paper - III	6	3	50	50	100	4		
	IV	22U4FRS604	Skill Based Paper IV - Audio Video and Speaker Identification	6	3	30	45	75	3		
	V	22U5EXT601	Extension Activities	-	-	-	50	50	2		
				30				525	21		
	<b>Total 3600</b>										
	Add	litional Credit (Optional)	Semester II - VI	Semester II - VI							

**# Basic Tamil** - Students who have not studied Tamil up to 12th standard.

Advance Tamil – Students who have studied Tamil language up to 12th standard and chosen other languages under part I of the programme but would like to advance their Tamil language skills.

\* NME – Students shall choose any one course out of three courses.

@ No End Semester Examinations. Only Continuous Internal Assessment (CIA)

\$ - Not included in Total marks & CGPA Calculation

**\*\*** Examination and Evaluation for Value Added Courses shall be conducted by the Industry and the Institute and marks shall be submitted to the COE for the award of Grade.

#### List of Discipline Specific Elective papers (Choose any one of the papers)

Elective-I	Subject Code		Name of the Subject		
Dissipling Specific	22U3FRE501	Α	Introduction to Forensic Finance		
Elective I	22U3FRE502	22U3FRE502 B Introduction to Cyber Forensic			
Elective – I	22U3FRE503	3FRE503 C Forensic Psychology			
	22U3FRT604	Α	Internship ; Analytical Science		
Discipline Specific	22U3FRT605	В	Internship ; Legal Services		
Elective – II	22112EDTCOC	С	Internship ; Police and Correctional		
	2203FK1000		Administration		
Dissipling Consider	22U3FRV607	Α	Project and Viva voce		
Discipline Specific	22U3FRE608	В	Criminal Procedure and Evidence		
Elecuve – III	22U3FRE609	С	Forensic Medicine and Anthropology		

#### Departmental Courses Offered by Forensic Science Department to other Department Students

Sl.No.	Semester	Course Code	Name of the Course			
1	TT	22U4FR3ED1	Fundamental Due Diligence			
2	111	22U4FR3ED2	Introduction to Jurisprudence			

the Sch							
S. No	<b>Course Code</b>	Name of the Course					
1	22U4VBOE01	Design Ecosystem					
2	22U4VBOE02	Design Thinking					
3	22U4VBOE03	Disaster Management					
4	22U4VBOE04	Environmental Pollution and Waste Management (EMS)					
5	22U4VBOE05	History of Ancient India					
6	22U4VBOE06	Indian Knowledge System					
7	22U4VBOE07	Principles of IPR					
8	22U4VBOE08	Science, Society and Culture					
9	22U4VBOE09	Community Engagement					
10	22U4VBOE10	Emotional Intelligence					
11	22U4VBOE11	Fundamentals of Tourism					
12	22U4VBOE12	Health Education					
13	22U4VBOE13	Media and Politics					
14	22U4VBOE14	Positive Psychology and Work Life					
15	22U4VBOE15	Professional Ethics					
16	22U4VBOE16	The Science of Happiness					
17	NCC						

Intra School Course offered by the Department to other Department Students (within the School)

• Students shall opt any course within their Schools.

• NCC – Students who qualify NCC B Certificate Examination need not appear for these open Electives. The Credits shall be transferred.

#### Self-Study Paper offered by Forensic Science Department

Sl. No.	Semester Course code		Course Title		
1	Comoston II to V	22UFRSS01	Serious Fraud Investigation		
2	Semester II to v	22UFRSS02	Corporate Law		

Chairman Board of Studies in Forensic Science Nehru Arts and Science College, Coimbatore

Course	e Code			Title					
22U3F	RC101		Core Paper I	- General Forensic Scie	ence				
Semes	ster : I		Credits : 4	CIA : 50 Marks	ESE : 50	Marks			
Course	Objectiv	ve	To learn the fundamental p crime scene in a systematic	principles of forensic scients of manner.	nce and pro	ocessing			
Course	Categor	·у	Knowledge						
Develo	pment N	eeds	Global						
Course	Descrip	tion	General forensic science deals with the history, development and governing principles of Forensic Science. This course also provide insight about the systematic processing of different crime scenes.						
Course	Outcom	es		Teaching Methods	Assessme	nt Methods			
CO 1	Unders Science	tand e.	the basics of Forensic	Lecture / Flipped Classroom	Assi	gnment			
CO 2	Unders which	tand forens	the legal framework in ic science operates.	Lecture / Flipped Classroom	(	Quiz			
CO 3	Processing crime scenes systematically.			Lectures / Hands-on training	Assi	gnment			
CO 4	Collect the mo	ion a st app	nd packing of evidences in ropriate way.	Tutorial / Lecture	Seminar				
CO 5	Docum mainta	enting	g the crime scene and in of custody	Lecture / Training	Case a	ssessment			
Offered by Forensic Science									
		Jourse Content         Instructional Hours / Week :							
Course	Content	;		Instructio	onal Hours	s / Week : 6			
Course Unit	Content	;	Description	Instructio	onal Hours Text Book	/ Week : 6 Chapters			
Course Unit I	Content Introdu Forensic need of of foren and tech forensic Laborat Forensic	ction cScie foren sic sc nique scie ory: S cScie ory in	<b>Description</b> nce: Definition, history and o sic science in criminal justic ience in India- Principles of es used in forensic science a ence- Organization setup tructure and function of Sta nce Laboratories. Role of M crime scene investigation.	Instruction development - Scope and ce system- Development forensic science - Tools nd various disciplines in of Forensic Science te, Regional and Central Mobile Forensic Science	1	Chapters			
Course Unit I	Content Introduce Forensic need of of foren and tech forensic Laborate Forensic	ction cScie foren sic sc mique scie ory: S c Scie ory in	Description nce: Definition, history and o sic science in criminal justic ience in India- Principles of es used in forensic science a ence- Organization setup tructure and function of Sta nce Laboratories. Role of M crime scene investigation.	Instruction development - Scope and ce system- Development forensic science - Tools nd various disciplines in of Forensic Science te, Regional and Central Mobile Forensic Science Instruction	1 nal Hours	l Week : 6 Chapters			
Course Unit I Sugges	Content Introdu Forension need of of foren and tech forension Laborate Forension Laborate <b>ted Lear</b>	ction cScie foren sic sc scie scie ory: S cScie ory in ning 1	Description nce: Definition, history and o sic science in criminal justic ience in India- Principles of es used in forensic science a ence- Organization setup tructure and function of Sta nce Laboratories. Role of N crime scene investigation. Methods: Video lectures Forensic Science	Instruction development - Scope and ce system- Development forensic science - Tools nd various disciplines in of Forensic Science te, Regional and Central Mobile Forensic Science Instruction	nal Hours Text Book	l Week : 6 Chapters			
Course Unit I Sugges	Content Introdu Forension and tech forension Laborate Forension Laborate Education Role of Forension Evidence Evidence (accordi	ction cScie foren sic sc ory: S cory: S cory: S cory: S cory: Med cory: nin ning 1 con in con in con	Description nce: Definition, history and o sic science in criminal justic ience in India- Principles of se used in forensic science a ence- Organization setup tructure and function of Sta nce Laboratories. Role of M crime scene investigation. Methods: Video lectures Forensic Science Forensic Science, Ethics i lia- Duties & Qualification entist at the Crime Scene- vidence in The Court of I sentation, Components of re ISO/IEC 17025:2005).	Instruction development - Scope and ce system- Development forensic science - Tools nd various disciplines in of Forensic Science te, Regional and Central Mobile Forensic Science Instruction n Forensic Science and n of Forensic Scientist- Presentation of Expert Law, Report writing & eports and report format	nal Hours Text Book 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 <b>Week : 6</b> Chapters			
Course Unit I Sugges	Content Introdu Forension need of of foren and tech forension Laborate Forension Laborate Educate Role of Forension Evidence (accordi	ction cScie foren sic sc scie ory: S cScie ory in ning 1 ion in Med cScie re, Ev re pre ng to	Description nce: Definition, history and o sic science in criminal justic ience in India- Principles of es used in forensic science a ence- Organization setup tructure and function of Sta nce Laboratories. Role of M crime scene investigation. Methods: Video lectures Forensic Science Forensic Science, Ethics i lia- Duties & Qualification entist at the Crime Scene- vidence in The Court of I sentation, Components of re ISO/IEC 17025:2005).	Instruction development - Scope and ce system- Development forensic science - Tools nd various disciplines in of Forensic Science te, Regional and Central Mobile Forensic Science Instruction n Forensic Science and n of Forensic Scientist- Presentation of Expert Law, Report writing & eports and report format	nal Hours Text Book 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<ul> <li>/ Week : 6</li> <li>Chapters</li> <li>1</li> <li>18</li> <li>2</li> <li>18</li> </ul>			

	Crime Se	cene Investi	igation						
III	Definition of crime and crime scene- Types of crime scenes: Primary, Secondary, Indoor and Outdoor- Concept of evidence- evidence classification: direct, circumstantial, physical, biological, corroborative, conclusive, trace and testimonial- Locard's principle of exchange- Elements of crime scene: Information from victim, witness, crime scene, suspects, databases and records- Agencies involved in crime scene management: Police, Medico legal experts, Judicial officers- Actions of first responding officer: Objectives, documentation, officer safety, emergency care, secure and control, release scene to appropriate authorities. Steps of crime scene investigation.								
	scene mv	esugation.			Instruction	nol Uoum	n 19		
Suggos	tod Loorn	ing Mothod	ls. Video lootu	mos	mstructio		5 10		
Sugges	Seenah a	ing Method	is: video lecu	ires imo Soono					
IV	Search and Documentation of Crime SceneDocumenting crime scene: Crime scene photography: Locationand scene, long-range mid-range and short range photographs-Importance of scale- Use of L scale - Search: definition, objectivesand search patterns - Strip method, grid method, zone/quadrant14method, spiral method (inward and outward), Point to pointmethod, wheel method- Crime scene sketching: Indoor andoutdoor, triangulation method, baseline method, polar coordinate								
	Instructional Hours 18								
Suggested Learning Methods: Practice using set-up crime scenes									
V	Collectio Collectio general c analysis, Forwardi preparatio maintena evidences	on, packing on, packaging consideration hypothesis ng of evid on of questi nce- Docum s.	and forwardi g and preserva ns- Stages of s formulation ences: Packin ionnaire- Chai nents to be s	ng of evidences attion of physica investigation: of , testing, theo g and sealing n of custody: I ubmitted to FS	s Il evidence and data collection ory formation of evidences mportance and SL along with		5		
					Instructio	onal Hours	s 18		
Sugges	ted Learn	ing Method	ls: Laboratory	y practice					
					Т	otal Hours	s 90 Hrs		
Text B	ooks	1.	General For Science, Neh	ensic Science: ru Arts and Sci	Compiled by ence College C	Dept. of oimbatore	Forensic		
Reference Books1. An Introduction To Forensic Scientific and Investi Techniques", Stuart.H.James and Jon. J. Nordby, Third Ed CRC Press, 2007.2. Criminalistics- An Introduction To Forensic Science, Saferster Printice Hall Inc. USA , 2003.						Investigative hird Edition, Saferstein.R,			
			Tools for As	ssessment (50 N	Marks)				
CL	AI	CIA II	CIA III	Assignment	Seminar	Quiz	Total		
8		8	10	8	8	8	50		

	Mapping												
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Н	М	L	L	Н	L	Н	L	Н	М	L	М	L
CO2	Н	М	М	L	Н	L	Η	L	Н	М	L	М	L
CO3	Н	Н	М	L	Н	L	Н	L	Н	М	L	М	L
CO4	Н	Н	М	L	Н	L	Н	L	М	М	L	М	L
CO5	Н	Н	М	L	Н	L	h	L	Н	М	L	М	L
H-High;	M-Me	dium;	L-Low	7									
		Course	e desig	ned b	y			Verified by					
L													

NASC	2022
NASC	<b>  4</b> 0

Course	Code		Title						
22U3F	RP102		Core Paper II - Crime Scene Management Practical						
Semes	ter : I		Credits : 4	CI	A : 50 Marks		ESE : 50 Marks		
Course	Objecti	ve	Provide students with an crime scene analysis.	n und	erstanding of the	e syste	ematic methods of		
Course	Catego	ry	Employability						
Develop	oment N	eeds	Global						
Course	Descrip	tion	Scientific study of crime scene for the systematic collection and packaging of evidences.						
Course	Outcon	nes			Teaching Methods		Assessment Methods		
CO 1	Identif	y poss	ible evidences from a cri	Demonstration Video Lessons	/	Practical			
CO 2	Docum	nent a o	crime scene.		Demonstration		Practical		
CO 3	Collect	and p	ack evidences scientificall	у.	Demonstration Video Lessons	Practical			
CO 4	Mainta	in cha	in of custody		Demonstration Video Lessons	/	Practical		
CO 5	Study manage	the le ement	gal aspects of crime sco	ene Demonstration / Video Lessons		/	Practical		
Offered	by Fo	orensio	e Science						
Course	Conten	t			Instr	uctio	nal Hours / Week : 6		

S. No.	Experiment
1	To prepare a report on evaluation of crime scene.
2	Seizure of the premises of the crime scene, clothing, accessibility and chronology of investigation.
3	Photography of crime scene.
4	Searching and Listing of evidences at indoor crime scene.
5	Searching and Listing of evidences at outdoor crime scene.
6	Sketching of Crime scene by triangulation method
7	Sketching of Crime scene by baseline method.
8	Evidence collection, packaging, sealing and labelling.
9	Analysis of blood stains pattern using photograph.
10	Study of legal aspects of crime scene analysis
	TOTAL 90 Hours

	Tools for Assessment (50 Marks)										
Analytical Skill	Lab Performance	Inference	Test I	Test II	Observation	Total					
8	8	8	10	10	6	50					

	Mapping												
CO \ PO	<b>PO1</b>	PO2	PO3	PO4	PO5	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Н	Н	-	-	-	-	М	L	Н	Н	Н	Н	L
CO2	Н	Н	-	-	-	-	М	L	М	L	Н	Н	L
CO3	Н	Н	-	L	-	-	М	L	Н	М	Н	М	L
CO4	Н	Н	-	L	-	-	М	L	Н	L	Н	Н	L
CO5	Н	Н	-	М	-	-	М	L	Н	Н	Н	М	L
H-Hig	h; M-I	Mediun	n; L-Lo	W									
		Cours	e desig	gned b	y					Verifi	ed by		

С	ourse Code	urse Code Title								
<b>22</b> U	3FRA101	Allied	Paper I - Forensic Chemi	istry						
Ser	nester : I	Credits : 4	CIA: 50 Marks	ESE : 50	Marks					
Course	Objective	To develop knowledge analyse them.	about various chemical e	vidences a	nd skills to					
Course	Category	Employability								
Develo	oment Needs	Global/National								
Course	Description	Forensic Chemistry deal evidences. The course in techniques of chemical sa	ls with Forensic Analysis ncludes features, collectio amples.	s of various chemical on methods, analysing						
Course	Outcomes		Teaching Methods	Assessme	nt Methods					
CO 1	Understand t various chem	he chemical properties of nical evidences.	Lecture / Flipped Classroom	Assi	gnment					
CO 2	Learn the te pack chemica	echniques to collect and al evidences.	Video lectures / Tutorials	Se	minar					
CO 3	Acquire skill evidences.	lls to analyse chemical	Lectures/ Tutorials	(	Quiz					
CO 4	Develop deta effects of c social levels.	ailed awareness about the lrugs in individual and	Tutorial / Case Studies	Ac	ctivity					
CO 5	Introduce the control.	he concept of quality	Lecture / Tutorials	Assi	gnment					
Offered	l by Forensie	c Science								
Course	Content		Instructio	onal Hours	/ Week : 5					
Unit		Description		Text Book	Chapters					
I	Petroleum pro Petroleum pro Examination of Commercial products for importance of	roducts oducts: types, by products, of petroleum products: dist uses. Standard methods of adulteration. Scope, in f analysis for the adulterant	uses and importance. tillation and fractionation. of analysis of petroleum mportance and forensic is in petroleum products.	1	all					
			Instruction	nal Hours	15					
Suggest	ted Learning 1	Methods: Reference to D	FS Manuals							
II	Arson Chemistry of point and ign finding the ign investigator, of Lab analysis of	fire, pyrolysis, combustic nition temperature. Fire c niter. Investigation of arson collection preservation and of the evidence, instrument	on, fire tetrahedron, flash categories, burn patterns, n cases, functions of a fire packing of fire evidences. al techniques used.	1	all					
			Instruction	nal Hours	15					
Suggest	ted Learning I	Methods: Reference to D	FS Manuals	1						
III	<b>Explosives</b> Introduction, Synthesis and Explosion pro	classification, composit actions of explosives (TN ocess and affects. types of	ion and characteristics. T, PETN and RDX, IED). of explosions, post blast	2	all					

	residue laborat	coll	ection. nemica	Exa l and i	minati nstrum	on of nental)	f expl	osion	residue	es in			
		( <b>•</b>					-		Insti	ructio	nal Hour	s	15
Suggest	ed Lea	rning	Metho	ds: Ro	eferen	ce to I	<b>DFS M</b>	anual	s				
IV	Drugs of abuseDrugs: definition, classification and scope and forensicimportance- Commonly consumed drugs, their mode of actions,Vsymptoms, street names, methods of consumption- Analysis ofdrugs: chemical and instrumental. Spot tests and qualitativeanalysis- Importance of physical and biochemical instrumentationin the field of dug analysis.												all
								Insti	ructio	nal Hour	S	15	
Suggest	ed Lea	rning	Metho	ds: Re	eferen	ce to I	<b>DFS M</b>	anual	s		-		
V	Alcoho Analys and bro Analys	ol is of E eath, A is of C	Ethyl al malysis Themica	cohol s of M als in 7	in bev ethanc Frap C	, liquo Denatu	ors, bio rants,	ological Illicit lio	fluids quors,	4		5	
									Insti	ructio	nal Hour	s	15
Suggest	ed Lea	rning	Metho	ds: Ro	eferen	ce to I	DFS M	anual	S				
											tal Hour	s 75	Hrs
Text Bo Referen	oks ce Boo	ks	2. 3. 4. 1. 2.	Scie DFS Scie DFS Scie Fore Neh Star Nos Fire	nce, G Manu nce, G Manu once, G ensic C ru Arta dard trand I scene <b>bls for</b>	f India aplosive f India arcotic f India stry: C Science ds of ld; 6 <sup>th</sup> nce; Al	es: Pub s: Pub ompile <u>Colle</u> chem edition mirall ( <b>50</b> M	blished b lished b ed by D ge Coim ical ana n. J R & Fu <b>larks</b> )	y Dire y Dire ept. o <u>ibatore</u> lysis; urton l	ectorate o ectorate o f Forensio e. Welcher K G; CRC	of Foren f Foren c Scien Frank C Press (	usic usic (ce, (2004)	
CIA	Ι	CL	A II	C	IA III	As	ssignm	ent	Semina	ar	Quiz	Το	otal
8			8		10		8		8		8	5	50
			-	1		Ma	pping	1	0	1	•	· · ·	-
CO \ PO	<b>PO1</b>	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	2 PSO3	PSO4	PSO5
CO1	H	M	Н	L	L	-	Н	L	L	Н	Н	L	L
CO2	Н	М	Н	L	L	-	Н	L	L	Н	Н	L	L
CO3	Н	М	М	Η	L	-	Н	L	L	Н	Н	L	L
CO4	Η	М	М	L	L	-	Н	L	Н	Н	L	М	L
CO5	Н	М	Н	L	L	-	Н	L	Μ	Н	М	М	L
H-High; I	M-Medi	ium; L-	Low										
	Course designed by									Verif	ied by		

Course	e Code		Title								
22U3F	2U3FRC203     Core Paper III - Ballistics and Tool Marks										
Semes	ter : II		Credits : 4	CIA: 50 Marks	ESE : 50	Marks					
Course	Objecti	ve	To learn to solve the va involved.	arious crimes in which	h firearms an	d tools are					
Course	Categor	y	Employability								
Develo	pment N	eeds	Global/National								
Course	Descrip	tion	Forensic Ballistics deals firearms and tool marks. 7 and analysis of ballistics e	with Forensic Analysi The course includes fea evidences and tool mark	s of evidence tures, collecti cs.	s related to on methods					
Course	Outcom	ies		<b>Teaching Methods</b>	Assessme	ent Methods					
CO 1	To kno and am	w the muni	basic working of firearms tion	Lecture/Demonstration	Ass	ignment					
CO 2	Develo ammur	p ski nition.	lls to handle firearms and	Video lectures/Tutorial	ls Se	eminar					
CO 3	To dev various involve	velop s crim ed	skills to investigate the nes in which firearms are	Lectures/ Tutorials		Quiz					
CO 4	Learn bullets	the s and c	cience of comparison of artridge cases.	Tutorial / Case Studies	A	ctivity					
CO 5	CO 5Acquire skills to develop tool marks from crime scene and analyse it.Lectures/ TutorialsAssignment										
Offered	l by 🛛 Fo	rensi	c Science								
Course	Content	t	urse Content Instructional Hours / Week: 6								
Unit			Description		Text Book	Chapters					
Unit	Introdu Scope o of vario action n magazir calibre. of the fo carbine,	f fore us fir necha ne, fir Impro ollowi AK 4	<b>Description</b> to Ballistics nsic ballistics- History of firearms- Firearms: Classific nism and loading- Parts of ring mechanism and barre ovised, country made & im ng firearms: 12 bore, INSA 47, SLR.	rearms: lock mechanist ation: Based on rifflin firearms: Butt, chambe el. Concept of bore ar itative firearms. Feature S, 0.315, revolver, pisto	m g, er, ad es ol,	<b>Chapters</b> 1,2,3					
Unit	Introdu Scope o of vario action n magazir calibre. of the fo carbine,	f fore us fir necha ne, fir Impro ollowi AK 4	<b>Description</b> to Ballistics nsic ballistics- History of firearms- Firearms: Classific nism and loading- Parts of ring mechanism and barre ovised, country made & im ng firearms: 12 bore, INSA 47, SLR.	rearms: lock mechanist ation: Based on rifflin firearms: Butt, chambe el. Concept of bore ar itative firearms. Feature S, 0.315, revolver, pisto Instruct	Text Book	<b>Chapters</b> 1,2,3 <b>18</b>					
Unit I Sugges	Introdu Scope o of vario action n magazir calibre. of the fo carbine,	f fore us fir necha ne, fir Impro illowi AK <sup>2</sup>	Description to Ballistics nsic ballistics- History of firearms- Firearms: Classific nism and loading- Parts of ring mechanism and barre ovised, country made & im ng firearms: 12 bore, INSA 47, SLR.	rearms: lock mechanist ation: Based on rifflin firearms: Butt, chambe el. Concept of bore ar itative firearms. Feature S, 0.315, revolver, pisto Instruct eading	Text Book	Chapters           1,2,3           18					
Unit I Sugges	Introdu Scope o of vario action n magazir calibre. of the fo carbine, ted Lear Interna Ammun and Wa Definitie powder, propella develop Ballistic firearm, and sile	retion f fore us fir hecha he, fir Impro llowi AK <sup>2</sup> <b>ning</b> <b>l and</b> ition, ds. U on, Cl singl ints. ed in cs: Do gas f ncers.	Description to Ballistics nsic ballistics- History of firearms- Firearms: Classific nism and loading- Parts of ring mechanism and barre ovised, country made & im ng firearms: 12 bore, INSA 47, SLR. Methods: Library extra re Intermediate Ballistics Cartridge case, Primer, Pri Jse of lead as bullet mate hemical composition of prir e base, double base, cordite Degressive and progress aside the barrel. Theory efinition, effects on the model low field near the muzzle, m	rearms: lock mechanist ation: Based on rifflin firearms: Butt, chambe el. Concept of bore ar itative firearms. Feature S, 0.315, revolver, pisto Instruct eading copellant, Bullets, Pelle erial. Internal Ballistic ner and propellant (blac ). Ignition and burning of sive burning. Pressur of recoil. Intermedia motion of projectile ba	Text Book       m       g,       es       of,       ional Hours	Chapters         1,2,3         18         3.4					
Unit I Sugges	Introdu Scope o of vario action n magazir calibre. of the fo carbine, ted Lear Interna Ammun and Wa Definitia powder, propella develop Ballistic firearm, and siles	<b>ction</b> f fore us fir necha ne, fir Impro ollowi AK 4 <b>ning</b> <b>l and</b> ition, ds. U on, Cl singl ants. ed in cs: Do gas f ncers.	Description to Ballistics nsic ballistics- History of fi- rearms- Firearms: Classific nism and loading- Parts of ring mechanism and barre ovised, country made & im ng firearms: 12 bore, INSA 47, SLR. Methods: Library extra re Intermediate Ballistics Cartridge case, Primer, Pr Jse of lead as bullet match hemical composition of prir e base, double base, cordite Degressive and progress aside the barrel. Theory efinition, effects on the re low field near the muzzle, n	rearms: lock mechanist ation: Based on rifflin firearms: Butt, chambe el. Concept of bore ar itative firearms. Feature S, 0.315, revolver, pisto Instruct eading ropellant, Bullets, Pelle erial. Internal Ballistic ner and propellant (blac ). Ignition and burning of sive burning. Pressur of recoil. Intermedia motion of projectile b nuzzle flash, muzzle bla	Text Bookm g, r, ad es ol,ional Hoursional Hours	Chapters         1,2,3         18         3.4         18					

	1		1				
ш	<b>External Bal</b> External Ball motion of pro- trajectory- ca nature of Definition. Ph Cavitations, various types forensic aspec	<b>listics and Terminal Ballistics :</b> istics: Definition, vacuum trajectory, Equations of ojectile, gyroscopic equilibrium of bullets, vacuum lculation, effect of air resistance on trajectory and air-resistance phenomena. Terminal Ballistics: sysics of shock waves, shock waves within the body; temporary and permanent cavities. Behaviour of of bullets on hitting the target, Ricochet and its ets.	1	4			
	1	Instruction	al Hours	18			
Sugge	stad Laarning		10				
bugge	Evidentiony						
IV	Calculation of shotguns: B Characteristic Types, occurr test Bullets Identification formation of composition methods of ar	f trigger pull Determination of range of firing for urning, scorching, blackening and Tattooing. s of contact shots, Walker's test. Evidentiary clues: ence, collection and packing. Matching of crime & and cartridge cases. Comparison microscope, of bullets and their comparison. Factors affecting the striations. Gun Shot Residues (GSR): formation, and positioning of GSR. Collection, chemical alysis and instrumental methods of analysis.	1	5,6			
		Instruction	al Hours	18			
Sugge	sted Learning	Methods : Laboratory practice					
V	<b>Tool Marks</b> Types of to combination Class charact Lifting of too cut marks; Fo Expert testim applications i	ol marks : compression marks, striated marks, of compression and striated marks, repeated marks. eristics and individual characteristics; Tracing and marks. Photographic examination of tool marks and orensic examination and comparison of tool marks. ony in tool marks. Comparison microscope and its n tool mark analysis.	1	6			
		Instruction	al Hours	18			
Sugge	sted Learning	Methods: Online training					
		Tot	al Hours	90 Hrs			
Text B	Books	1. Sharma, B.R. (2017) Firearms in criminal investigation and trials: An integrative approach. Gurgaon, Haryana, India: Lexis Nexis.					
Refere	ence Books	<ol> <li>J. Howard Mathews, Charles C. Thomas; Firearms Identification, VolI, II &amp; III, Springfield Illinois, 1973.</li> <li>Hatcher, Jury and Weller; Firearms Investigation, Identification and Evidence, Stackpole Books, Harrisburg, PA, 1977.</li> <li>Vincent Di Maio; Gunshot Wounds, CRC Press, Washington, DC, 1999.</li> <li>Brain J. Heard; Hand book of Firearms and Ballistics, John Willey England, 1997.</li> <li>TA. Warlow; Firearms- The Law and Forensic Ballistics Taylor and Francis London, 1996.</li> </ol>					

				Тос	ols for	Asse	ssmen	t (50 N	(farks)					
CIA	I	CL	A II	C	IA III	A	ssignr	nment Seminar			Quiz		Total	
8		8 10					8		8			8	5	0
CO\PO PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PSO1 PSO2 PSO3 PSO4 PSO5													PSO5	
CO1	Μ	М	М	Н	М	-	L	L	L	Μ	[	Н	L	L
CO2	Н	Н	Н	Н	Н М - Н				L	Н	[	Н	Μ	Н
CO3	Μ	Н	Н	Н	М	-	L	L	L	Н	[	Н	L	L
CO4	Μ	М	Н	Н	М	-	L	L	L	Н	[	Н	L	L
CO5	Μ	Н	М	Н	М	-	L	L	L	Μ	[	Н	-	L
H-High;	M-Me	dium; 1	L-Low											
		Course	e desig	ned by	y					Ver	ifie	d by		

Course	Code				Title		Title								
22U3FI	RP204		Core Paper IV - B	allisti	ics and Tool M	arks	Practical								
Semest	er : II		Credits : 4	CIA	A: 50 Marks	ESE : 50 Marks									
Course	Objecti	ve	To learn the techniques	of ana	lysing ballistics	and	tool marks evidences								
Course	Catego	ry	Employability												
Develop	ment N	leeds	Global/National												
Course	<b>Course Description</b> Forensic Ballistics deals with Forensic Analysis of evidences related to firearms and tool marks. The course includes features, collection methods and analysis of ballistics evidences and tool marks														
Course	Outcon	ies			Teaching Meth	nods	Assessment Methods								
CO 1	Identif cartrid	y vario ge cases	bus cartridges, bullets	and	Demonstratio Video Lesson	n / Is	Practical								
CO 2	Identif	y differ	ent firearms		Demonstratio Video Lesson	n/ Is	Practical								
CO 3	Acquir related	e skills to balli	to conduct various spot stics	tests	Demonstratio Video Lesson	n / Is	Practical								
CO 4	System surface	natic lift e.	ing of tool marks from var	rious	Demonstratio Video Lesson	n / Is	Practical								
CO 5Develop skill to compare tool marksDemonstration / Video LessonsPrace															
Offered	by Fo	orensic	Science												
Course	Conten	t			Instr	uctio	nal Hours / Week : 6								

S. No.	Experiment
1	Identification of parts of firearms
2	Preliminary examination of various characteristics of fired bullets and shots.
3	Preliminary examination of various characteristics of fired cartridge cases.
4	Chemical tests for powder residues and barrel wash.
5	Examination and comparison of fired and test bullets and shots.
6	Examination and comparison of fired and test cartridge cases.
7	Collection and packing of Gun Shot Residues.
8	Identification of bullet using holes physical and chemical examination.
9	Lifting of tool marks from different surfaces
	TOTAL 90 Hours

	Tools for Assessment (50 Marks)										
Analytical Skill	Lab Performance	Inference	Test I	Test II	Observation	Total					
8	8	8	10	10	6	50					

	Mapping												
CO \ PO	<b>PO1</b>	PO2	PO3	<b>PO4</b>	PO5	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Μ	М	Н	Н	М	-	L	L	L	Н	Н	Н	L
CO2	Μ	М	Н	Н	Н	-	Н	Н	L	Н	Н	Н	Н
CO3	Μ	М	Н	Н	-	-	L	L	-	Н	Н	М	L
CO4	Μ	М	Н	Н	М	-	L	L	-	Н	М	L	L
CO5	М	М	Н	Н	-	-	L	L	-	М	Н	L	L
H-High	n; M-1	Medium	n; L-Lov	W									
		Cours	e desig	ned by	y					Verifi	ed by		

Course	ourse Code Title										
22U3F	RA202		Allied Paper II	- Instrumental Techni	ques I						
Semest	ter : II		Credits : 4	CIA: 50 Marks	ESE : 50	Marks					
Course	Objectiv	ve	To learn the fundamental pr Science lab	rinciples of various instru	iments used	in Forensic					
Course	Categor	·у	Employability								
Develop	oment N	eeds	Global	pal							
Course	Descrip	tion	Instrumental techniques are course is designed to prov- used in Forensic Labs, espe	e fundamental to any laboratory analysis. This vide an overview of the various analytical tools ecially in chemistry division							
Course	Outcom	es		Teaching Methods	Assessme	ent Methods					
CO 1	Learn various	the analy	physics and working of ytical tools and instruments.	Lecture/Demonstration	Ass	ignment					
CO 2	2 Ability to select suitable instrument fo the analysis of a given forensic sample. Get familiar with molecular analytica			Lecture/ Case studies	Cas	e studies					
CO 3	Get fai method	niliar ls	with molecular analytical	Lecture/Demonstration	Se	eminar					
CO 4	Learn t profilin	the tea	chniques used in elemental	Lecture/Video lecture		Quiz					
CO 5 for qualitative and quantitative estimation				Lecture/Demonstration	Ass	Assignment					
Offered	l by Fo	rensi	c Science								
Course	Content	t		Instructi	onal Hours	s / Week : 5					
Unit			Description		Text Book	Chapters					
Ι	General Concept type of a Interaction phosphone Density Science	l Phy c of el cadiat ion be on, to resce grac	sical Concepts : ectromagnetic radiation, Lig ion (classification with freque etween matter and radiation refraction and scattering nce – principle and application lient analysis and refraction	ht as wave and particle, ency and wavelength) – absorption, emission, f. Fluorescence and ion in Forensic science. ve index in Forensic	1	all					
Contractor			M.41 J. T. 1	Instructio	nal Hours	15					
Suggest	ea Lear	uing .	viethous: Library extra rea	aung							
Instrumentation : source, variable (filter) and detector.Visible Spectroscopy : Principle- Beer Lambert's LaIIelectron transition, working, application and drawbacSpectroscopy : Principle, instrumentation and application.FTIR. RAMAN Spectroscopy and their applications in FeScience.				r) and detector. UV – r Lambert's Law and n and drawbacks. IR and application. IR and applications in Forensic	1	11,12,13					
				Instructio	nal Hours	15					
Suggest	ed Lear	ning	Methods: Video lectures								

	Atomi	c Spec	trosco	nv:									
	Atomic	abso	rption	Spect	roscon	v (AA	(S) and	1 Ato	mic Err	ission			
ш	Spectro		- Princ	vinle u	orking	r annl	ication	draw	backs	X_Ray	1	7	80
111	Diffrac	tion (		· Drii	ncinles	Wor	king	Annlia	eation	X Ray	1	/,	,0,7
	Eluora		ак <i>D)</i> (VDE)	. гш Wo	ncipies nicipa	, wor	King, A	Applic nd Da	ation.	л-кау			
	Fluores	scence	(ΛΚΓ)	- wo	rking,	Аррис				S.	. 1 TT		15
Suggost	tod I on	rning	Motho	der U	ands o	n traiı	ning		Insti	uction	al Hours	<b>S</b> .	15
Sugges	$\frac{100 \text{ Lea}}{NAA}$	Neutr	on Act	us. 11 ivetin	n Angl	lucic).	inng						
IV	Introdu Detecti Magne applica applica voltam	iction, ritic Relation, dution, dution, dution, dution.	Basic neasure esonan rawbac Concej	Theorement, ce) : cks. Di ot of	ory ar and Princ fferent electro	appl appl iple, ial the ochem	nciples ications workin rmal an istry :	, neu s. NN g, ins alysis Pola	tron so MR (N strumen : Workin rograph	ources, uclear tation, ng and y and	1	7,	,8,9
~	Instructi											<b>s</b>	15
Suggest	ted Lea	rning 1	Metho	ds: La	iborat	ory pr	actice					-	
V	VMass Spectrometry : Principle, Components- Sample inlets- Batch Inlet, probe inl direct inlet, chromatographic inlets, Ionization- ionization typ and ionization sources- EI, ESI, CI, FAB; vacuum syste Magnetism- mass analyzers- Quadrupole, Time of Flight, Ion tra Detectors- faraday cup, electron multiplier, Scintillation count Interpretation of Mass spectrograph. Applications of material										1		16
spectrometry in forensic science.													
	Instruction										al Hours	<b>s</b>	15
Suggest	ted Lea	rning ]	Metho	ds: O	nline t	rainin	g		Insti	ruction	al Hours	<b>s</b>	15
Suggest	ted Lea	rning ]	Metho	ds: Oi	nline t	rainin	g		Insti	ruction Tot	al Hours	s : s 75	15 Hrs
Suggest Text Bo	ted Lea	rning ]	Metho	ds: Or . ML Fort	nline t A. Sko : Wortl	<b>rainin</b> bog, Do	g ouglas nders C	A. Pri ollege	Instr nciples Pub., 1	<b>Tot</b> of Instr 992.	al Hours al Hours rumental	s 75 Analys	15 Hrs sis.
Suggest Text Bo Referen	ted Lea boks nce Boo	rning ]	Metho           1           2           3           4           5	ds: Or . ML. Fort . Lun . Yin . Bor . Moo 197 . Gilt	A. Sko Wortl dquist on, For row, M onesen 3.	rainin oog, Do h: Saur and C rensic folecu s A.A. C-MS	g ouglas nders C urry, M Applica lar Spec et al., S guide t	A. Pri ollege lethod ation c ctrosco Scient o Ignit	Instr nciples Pub., 1 s in For of Mass opy, 198 ific Evic table Lic	Tota of Instr 992. ensic So Spectro 30. dence ir quids, 1	al Hours al Hours umental cience, 1 ometry, 1 ometry, 1 of Crimin 997.	s 75 Analys 983. 994. al Case	<b>Hrs</b> 3is. s,
Suggest Text Bo Referen	ted Lea	rning I	Metho           1           2           3           4           5	ds: Or Fort Lun Vin Bor Moo 197 Gilt	A. Sko Wortl dquist on, For row, M onesen 3. bert, Gu <b>ols for</b>	rainin bog, Do h: Saun and C rensic folecu s A.A. C-MS Asses	g ouglas nders C urry, M Applica lar Spec et al., s guide t	A. Pri ollege lethod ation c ctrosco Scient o Ignit	Instr nciples Pub., 1 s in Foro of Mass opy, 198 ific Evic table Lic arks)	Tota of Instr 992. ensic So Spectro 30. dence ir quids, 1	al Hours al Hours umental cience, 1 ometry, 1 ometry, 1 of Crimin 997.	s 75 Analys 983. 994. al Case	<b>Hrs</b> Sis.
Suggest Text Bo Referen	ted Lea boks nce Boo	rning   ks	Metho 1 1 2 3 4 5 <b>A II</b>	ds: Or Fort Lun Bor Bor Moo 197 Gilt Too	A. Sko Wortl dquist on, For row, N onesen 3. oert, G ols for IA III	rainin pog, D h: Saur and C rensic folecu s A.A. C-MS Assess Assess	g ouglas nders C urry, M Applica lar Spec et al., s guide t sment ( ssignm	A. Pri ollege lethod ation c ctrosco Scient o Ignit (50 M ent	Instr nciples Pub., 1 s in For of Mass opy, 198 ific Evic table Lic arks) Semin	Tot: of Instr 992. ensic So Spectro 30. dence ir quids, 1 <b>ar</b>	al Hours al Hours umental cience, 1 ometry, 1 n Crimin 997. Quiz	s 75 Analys 983. 994. al Case	15 Hrs sis. s, s, tal
Suggest Text Bo Referen	ted Lea	rning ks	Metho 1 1 2 3 4 5 A II 8	ds: Or Fort Lun Vin Bor Mod 197 Gilt Tod	A. Sko Wortl dquist on, For row, M onesen 3. bert, Go bls for IA III 10	rainin bog, Do h: Saun and C rensic folecut s A.A. C-MS Assess Assess	g ouglas nders C urry, M Applica lar Spec et al., S guide t sment ( ssignma 8	A. Pri ollege lethod ation c ctrosco Scient o Ignit (50 M ent	Instr nciples Pub., 1 s in Foro of Mass opy, 198 ific Evid table Lid arks) Semin 8	Tot: of Instr 992. ensic So Spectro 30. dence ir quids, 1 <b>ar</b>	al Hours al Hours umental vience, 1 ometry, 1 ometry, 1 of Crimin 997. Quiz 8	s 75 Analys 983. 994. al Case To 5	<b>Hrs</b> sis. s, <b>tal</b> 0
Suggest Text Bo Referen	ted Lea poks nce Boo	rning ks	Metho 1 1 2 3 4 5 A II 8	ds: Or Fort Lun Mod 197 Gilt Tod	A. Sko Wortl dquist on, For row, M onesen 3. bert, G bls for IA III 10	rainin pog, D h: Saur and C rensic folecu s A.A. C-MS Assess As Assess	g ouglas nders C urry, M Applica lar Spec et al., 5 guide t sment ( ssignm 8 pping	A. Pri ollege lethod ation c ctrosco Scient o Ignit (50 M ent	Instr nciples Pub., 1 s in For- of Mass opy, 198 ific Evic table Lic arks) Semin 8	Tot: of Instr 992. ensic So Spectro 30. dence ir quids, 1 <b>ar</b>	al Hours al Hours umental cience, 1 ometry, 1 n Crimin 997. Quiz 8	s 75 Analys 983. 994. al Case <b>To</b> 5	15 Hrs sis. s, tal 0
Suggest Text Bo Referen	ted Lea	rning ks CL PO2	Metho 1 1 2 3 4 5 A II 8 PO3	ds: Or Fort Lun Bor Bor Mod 197 Gilt Too	A. Sko Wortl dquist on, For row, N onesen 3. bert, Gu bert, Gu ber	rainin oog, Do h: Saun and C rensic folecul s A.A. C-MS Assess Assess Ma PO6	g ouglas nders C urry, M Applica lar Spec et al., S guide t sment ( ssignm 8 pping PO7	A. Pri ollege lethod ation c ctrosco Scient o Ignit (50 M ent PO8	Instr nciples Pub., 1 s in Foro of Mass opy, 198 ific Evid table Lid arks) Semin 8 PSO1	Tot: of Instr 992. ensic So Spectro 30. dence ir quids, 1 <b>ar</b>	al Hours al Hours umental cience, 1 ometry, 1 of Crimin 997. Quiz 8 PSO3	s 75 Analys 983. 994. al Case To 5 PSO4	15 Hrs sis. s, s, tal 0 PSO5
Suggest Text Bo Referen	ted Lea	rning	Metho 1 1 2 3 4 5 A II 8 PO3 -	ds: Or Fort Fort Lun Yin Bor 197 Gilt Too PO4 H	A. Sko Wortl dquist on, For row, M onesen 3. bert, Go bls for IA III 10 PO5 -	rainin oog, Do h: Saur and C rensic folecu s A.A. C-MS Assess Assess Ma PO6 H	g ouglas nders C urry, M Applica lar Spec et al., S guide t sment ( ssignm 8 pping PO7 H	A. Pri ollege lethod ation c ctrosco Scient o Ignit (50 M ent PO8 H	Instr nciples Pub., 1 s in For- of Mass opy, 198 ific Evic table Lic arks) Semin 8 PSO1 -	Tota of Instr 992. ensic So Spectro 30. dence ir quids, 1 ar PSO2 H	al Hours al Hours umental cience, 1 ometry, 1 of Crimin 997. Quiz 8 PSO3 H	s 75 Analys 983. 994. al Case <b>To</b> 5 <b>PSO4</b>	15 Hrs sis. s, s, tal 0 PSO5 H
Suggest Text Bo Referen	ted Lea	rning	Metho 1 1 2 3 4 5 A II 8 PO3 - -	ds: Or Fort Fort Clun Mod 197 Gilt Tod PO4 H H	A. Sko Wortl dquist on, For row, N onesen 3. obert, Gu obs for IA III 10 PO5 -	rainin pog, D h: Saur and C rensic folecu s A.A. C-MS Assess As Ma PO6 H H	g ouglas nders C urry, M Applica lar Spec et al., S guide tr sment ( ssignm 8 pping PO7 H H	A. Pri ollege lethod ation c ctrosco Scient o Ignit (50 M ent PO8 H H	Instr nciples Pub., 1 s in For- of Mass opy, 198 ific Evid table Lid arks) Semin 8 PSO1 - -	Tota of Instr 992. ensic So Spectro 30. dence ir quids, 1 ar PSO2 H H	al Hours al Hours umental cience, 1 ometry, 1 of Crimin 997. Quiz 8 PSO3 H H	s 75 Analys 983. 994. al Case To 5 PSO4	15 Hrs sis. s, s, tal 0 PSO5 H H H
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Suggest Text Bo Referen	ted Lea	rning	Metho 1 1 2 3 4 5 A II 8 PO3 - - - - - - - - - - - - -	ds: Or Fort Fort Clun Solution Model 197 Gille Too PO4 H H H H H	A. Sko Wortl dquist on, For row, N onesen 3. oert, G ols for [A III 10 PO5 - - - - - - -	rainin pog, D h: Saur and C rensic folecut s A.A. C-MS Assess Assess Ma PO6 H H H H H	g ouglas nders C urry, M Applica lar Spec et al., s guide t sment ( ssignm 8 pping PO7 H H H H H H	A. Pri ollege lethod ation c ctrosco Scient o Ignit (50 M ent FO8 H H H H H	Instr nciples Pub., 1 s in For- of Mass opy, 198 ific Evic table Lic arks) Semin 8 PSO1 - - - - -	Tot: of Instr 992. ensic So Spectro 30. dence ir quids, 1 ar PSO2 H H H H H	al Hours al Hours al Hours al Hours umental umental cience, 1 metry, 1 commetry, 1 of Crimin 997. Quiz 8 PSO3 H H H H H H H H	s 75 Analys 983. 994. al Case To 5 PSO4 - - - - -	15 Hrs sis. s, s, tal 0 PSO5 H H H H H H

Course designed by	Verified by

Course Code Title									
22U3F	RC305		Core	e Pape	er V - Forensic	Physics			
Semest	ter : III		Credits : 4	CLA	A : 50 Marks		ESE : 50	Marks	
Course	Objectiv	ve	To develop the skill to id	entify	and analyse phy	ysical evi	dences.		
Course	Categor	y	Employability						
Develop	pment N	eeds	Global						
Course	Descrip	tion	Forensic Physics is the individualisation of physics are glass	e coll sical e s, pain	lection of met vidences. The 1 t, fibre, soil, bui	hods tha najor evi lding mat	is deployed for the dences that analysed in erials etc.		
Course	Outcom	es			Teaching M	ethods	Assessm	nent Methods	
CO 1	Analys eviden	is of g	glass and deduce glass		Lecture/Demor	nstration	А	ssignment	
CO 2	Ability	to in	dividualise soil samples		Lecture/ Case s	studies	Ca	ase studies	
CO 3 Compare va the source.			rious paint samples to find	put	Lecture/Demoi	nstration		Seminar	
CO 4 Restore era			ed identification marks		Lecture/Video	lecture		Quiz	
CO 5	Perform	n qua	lity test for building mater	ials	Lecture/Demor	nstration	A	ssignment	
Offered by Forensic Science									
Course	Content	;				Instruct	ional Ho	urs / Week : 5	
Unit	Description						Text Book	Chapters	
I	Types o fractures cone fra fragmen matchin Interpret	f glas s, Det acture tation g, der tation	s and their composition. Forensic examination of glass remination of direction of impact: concentric fracture, , radial fracture, rib marks, hackle marks, backward , Examination of glass: colour, fluorescence, physical nsity comparison, refractive index, elemental analysis, of glass evidence. Case studies related to glass					Sec 7	
			0 /		Inst	ructional	l Hours	15	
Suggest	ted Lear	ning l	Methods: Video lectures						
п	Soil Formation examination microscol different evidencol	on and tion opic tial th e. Cas	d types of soil ; Composition of soil : particle size examination, density grade ermal analysis, elemental size studies.	on and distr dient analys	l colour of soil, ibution, turbid analysis, igniti sis. Interpretatio	Forensic ity test, on loss, n of soil	1	Sec 9	
~					Inst	ructional	l Hours	15	
Suggest	Reinta	ning l	Methods: Library extra r	eadin	g				
PaintsTypes of painmicroscopicIIIchemical ananalysis. Pytechnique - 'Interpretation			and their composition, Forensic examination of paints: and macroscopic studies, Pigment distribution. Micro- lysis, physical matching, solubility test, elemental olysis, Cyclic voltammetry, AAS. Chromatographic LC, Colorimetry. IR spectroscopy, X-ray diffraction; of paint evidence. Case studies.				ts: o- cal 1 Sec 5 n;		
			•		Inst	ructional	l Hours	15	
Suggest	Suggested Learning Methods: Online training								

IV	Resto Meth Oblit Recor	oration of od of r eration, 1 rding of d determ	of Eras markin Method restor ination	Erased or Obliterated marks arking - Cast, Punch and Engrave, Methods of ethod of restoration - Etching, Magnetic, Electrolytic. 1 estored marks on different surfaces. Tyre Marks and ation in accident cases.									Sec 6		
I	1								Inst	ructiona	l Hours	1	5		
Suggest	ted Le	arning I	Metho	ds: La	borate	ory pr	actice								
V	Build Type by ph Analy ceme	<b>ling Mat</b> s of cem sysical, cl ysis of E nt concre	terials ent and hemica Bitumes ete and	d their ll and i n and stone:	composition nstrum road r s.	osition nental 1 nateria	. Deternethod 1. Ana	rminatio s. Exan lysis of	on of adunination of cement	lterants of brick; mortar,	1	Sec 1	1,12,13		
Instruction											l Hours	1	5		
Suggested Learning Methods: Hands on training												_	_		
Tot										Tota	l Hours	7	75		
Text Books         1. Forensic physics Manual by Directorate of Forensic S India										sic Scien	ice, Gov	t. of			
			1	. Woi	rking F	rocedu	ire Ma	nual: Pl	nysics BF	PR&D Pi	ublicatior	n, 2000.			
			2	. R. S	aferste	ein; Fo	rensic	Science	Handbo	ok, Vol	I, II, 200	4.			
			3	. B. (	Caddy	Fore	nsic E	xamina	tion of (	Glass an	d Paints	Analy	sis and		
<b>Reference Books</b> Interpretation ISBN 0784 05749, 2001.									TT' 1						
			4	. Jam	es Mi	chael (	Curran	, Tachi f C last	a Natilie	HICKS a	CRC Press 2000				
			5	FOR	ansic n	Crow	tation (	of Glass	o Evidenc	re, CRC	Press, 20 f. Dointo	00. and Di	monta		
			5	. Dav Tav	lu A. lor & F	Francis	NY $'$	2001		nation 0			gments,		
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					Fools f	or Ass	essme	nt (50 N	Jarks)	<u> </u>		- <u>r</u>			
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	PO1	PO2	PO3	<b>PO</b> 4	PO5	PO6		POS	PSO1	PSO2	PSO3	PSO4	PSO5		
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CO2	M	Н	Н	Н	M	-	M	L	-	Н	Н	L	M		
CO3	М	Н	Н	Н	М	-	М	L	-	Н	Н	L	L		
CO4	Н	Н	Н	Н	М	-	Н	L	-	Н	Н	L	L		
CO5	Н	Н	Н	Н	М	-	Н	L	-	Н	Н	L	Н		
H-High	; M-M	ledium; I	L-Low												
		Cours	se desi	gned l	)y					Verif	ied by				

Course	e Cod	e			Title					
22U3F	RP30	6	Core Paper VI -	Fo	orensic Physics Prac	ctical				
Semest	er : Il	I	Credits : 4	CIA	A : 50 Marks	ESE : 50 Marks				
Course	Obje	ctive	Learn the techniques of ana	alys	sing various physical	evidences.				
Course	Cate	gory	Employability							
Develop	oment	t Needs	Global / National	Global / National						
Course Description			Forensic Physics practica of various physical evide density, refractive index elasticity and composition are paint, glass, soil, fibre obliterated marks.	Forensic Physics practical deals with examinations and comparison of various physical evidences based on their physical attributes viz density, refractive index, resistivity, temperature, luminescence elasticity and composition. The physical evidences that are examined are paint, glass, soil, fibres, metallic pieces, threads, ropes, knots and obliterated marks.						
Course	Outc	omes			<b>Teaching Methods</b>	Assessment Methods				
CO 1	To phys soil,	learn tl sical na paint e	the forensic examination of the ture of various samples such a te.	he as	Demonstration / Video Lessons	Practical				
CO 2	Lear surfa	n to re aces.	store erased marks from met	al	Demonstration	Practical				
CO 3	Dete phys	ermine sical sar	the preliminary examination on nples for quick elimination	of	Demonstration / Video Lessons	Practical				
CO 4	Han effe	dle sim ctively	ple and compound microscop	pe	Demonstration / Video Lessons	Practical				
CO 5	Perf and	orm M paint.	croscopic examination of fib	re	Demonstration / Video Lessons Practica					
Offered	l by	Forens	ic Science	Science						
Course	Cont	ent			Instructio	onal Hours / Week : 4				
S. No	).		Ех	кре	riment					
1		Density	gradient analysis of soil samp	les						
2		Micros	copic examination of various fi	ibeı	rs.					
3		Restor	ation of erased identification mat	ark	8.					
4		Detern	ination of refractive index of g	las	s and liquids.					
5		Compa	rison of broken Glass bangles.							
6		Physic	al matching of broken pieces of	f di	fferent objects.					
7		Compa	rison of strings/ threads/ropes.							
8		Physic	al / Chemical analysis of Paint	san	nples.					
9		Compa	rison of Tool marks.	on of Tool marks.						
10		Compa	rison of paint chips under micr	osc	cope.					
						TOTAL 60 Hours				

NASC 2022

	Tools for Assessment (50 Marks)												
Analy Ski	tical ll	La Perfor	lb mance	Infere	nce	Test I		Test II		Observation		Total	
8 8				8		10	10		)	6		50	
	Mapping												
CO \ PO	<b>PO1</b>	PO2	PO3	PO4	PO5	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	PSO	1 PSO2	PSO3	PSO4	PSO5
CO1	Н	Н	L	Н	Μ	-	Н	-	-	Н	Н	М	М
CO2	Н	Н	L	Н	Μ	-	Н	-	-	Н	Н	М	М
CO3	Н	Н	L	Н	М	-	Н	-	-	Н	Н	М	М
CO4	Н	Н	-	Н	Μ	-	М	-	-	Н	Н	М	Н
CO5	Н	Н	-	Н	Μ	-	М	-	-	Н	Н	М	Н
H-High	n; M-N	Iedium;	L-Low										
		Course	designe	d by						Verified	by		

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Course	se Code Title						
22U3F	RA303		Allied Pap	er III - Forensic Biolog	gy		
Semest	er : III		Credits : 4	CIA : 50 Marks	ESE : 50	Marks	
Course	Objectiv	ve	To learn the various analy biological samples.	ytical tools involved in	the forension	e analysis of	
Course	Categor	у	Employability				
Develop	oment N	eeds	Global				
Course	Descrip	tion	Forensic Biology deals with water animals and wild ani	es such as pl	ants, insects,		
Course	Outcom	es		Teaching Methods	Assessment	Methods	
CO 1 Have a clear forensic biolog			idea about the scope of gy.	Lecture/Demonstration	Assi	gnment	
CO 2	System analysis	atic c s of hai	collection and scientific r and fibre.	Lecture/ Case studies	Case	studies	
CO 3	Underst plants.	tand th	e forensic significance of	Lecture/Demonstration	Se	minar	
CO 4	Calcula growth.	te the	time of death from insect	Lecture/Video lecture	(	Quiz	
CO 5	Underst cases.	tand ar	nd analyse wild life related	Lecture/Demonstration	Assi	gnment	
Offered by Forensic Science							
Course Content Instructional Hours / Week : 4							
Course	Content	,		Instruc	ctional Hou	rs / Week : 4	
Course Unit	Content	;	Description	Instruc	ctional Hour Text Book	rs / Week : 4 Chapters	
Course Unit	Content Introd	luction	Description to Forensic Biology	Instruc	ctional Hour Text Book	rs / Week : 4 Chapters	
Course Unit	Content Introd Histor	interior second	<b>Description</b> <b>to Forensic Biology</b> cope, divisions. Nature and in	Instruc	tional Hour Text Book	rs / Week : 4 Chapters	
Course Unit	Content Introd Histor eviden	<b>luction</b> y and soluces. F	<b>Description</b> <b>to Forensic Biology</b> cope, divisions. Nature and in Fundamentals of Biology,	Instruct mportance of biological Biochemistry and its	tional Hour Text Book	rs / Week : 4 Chapters	
Course Unit I	Content Introd Histor eviden import	<b>Juction</b> y and so aces. F	<b>Description</b> to Forensic Biology cope, divisions. Nature and in Fundamentals of Biology, in Forensic Biology. Imp	Instruct mportance of biological Biochemistry and its portance of Forensic Samplagy Collection	tional Hour Text Book	rs / Week : 4 Chapters 1	
Course Unit I	Content Introd Histor eviden import Anthro	<b>Juction</b> y and so aces. F tance opology	<b>Description</b> <b>to Forensic Biology</b> cope, divisions. Nature and in Fundamentals of Biology, in Forensic Biology. Im- y & Odontology, Forensic and packaging of biological (	Instruct mportance of biological Biochemistry and its portance of Forensic Serology. Collection, evidences	tional Hour	rs / Week : 4 Chapters 1	
Course Unit I	Content Introd Histor eviden import Anthro preser	<b>Juction</b> y and so aces. F tance opology vation a	<b>Description</b> to Forensic Biology cope, divisions. Nature and in Fundamentals of Biology, in Forensic Biology. Im- y & Odontology, Forensic and packaging of biological of	Instruction mportance of biological Biochemistry and its portance of Forensic Serology. Collection, evidences.	tional Hour	rs / Week : 4 Chapters 1	
Course Unit I Suggest	Content Introd Histor eviden import Anthro preser	<b>Juction</b> y and so aces. F tance opology vation a	Description to Forensic Biology cope, divisions. Nature and in Fundamentals of Biology, in Forensic Biology. Im- y & Odontology, Forensic and packaging of biological of Iethods : Library extra read	Instruct mportance of biological Biochemistry and its portance of Forensic Serology. Collection, evidences. Instruction ding	Text Book	rs / Week : 4 Chapters 1 12	
Course Unit I Suggest	Content Introd Histor eviden import Anthro preser ed Lear Hair a	luction y and so aces. F tance opology vation a ning M and Fil	Description to Forensic Biology cope, divisions. Nature and in Fundamentals of Biology, in Forensic Biology. Im- y & Odontology, Forensic and packaging of biological of lethods : Library extra read ores	Instruction mportance of biological Biochemistry and its portance of Forensic Serology. Collection, evidences. Instruction ding	tional Hour Text Book	rs / Week : 4 Chapters 1 1 12	
Course Unit I Suggest	Content Introd Histor eviden import Anthro preser ed Lear Hair a Hair -	luction y and so aces. F tance opology vation a ning M and Filt structu	Description to Forensic Biology cope, divisions. Nature and in Fundamentals of Biology, in Forensic Biology. Im y & Odontology, Forensic and packaging of biological of Iethods : Library extra read ores ure of human hair : Inner a	Instruction mportance of biological Biochemistry and its portance of Forensic Serology. Collection, evidences. Instruction ding	tional Hour	rs / Week : 4 Chapters 1 1 12	
Course Unit I Suggest	Content Introd Histor eviden import Anthro preser ed Lear Hair a Hair a bioche	luction y and se aces. F tance opology vation a ning M ning M and Filt structure	Description to Forensic Biology cope, divisions. Nature and in Fundamentals of Biology, in Forensic Biology. Im y & Odontology, Forensic and packaging of biological of lethods : Library extra read ores ure of human hair : Inner a of hair and growth stages.	Instruct mportance of biological Biochemistry and its portance of Forensic Serology. Collection, evidences. Instruction ding and Outer morphology, Comparison of human	tional Hour	rs / Week : 4 Chapters 1 1 12	
Course Unit I Suggest	Content Introd Histor eviden import Anthro preser ed Lear Hair a Hair - bioche and ar	luction y and so tance opology vation a ning M nd Filt structu emistry nimal h	Description to Forensic Biology cope, divisions. Nature and in Fundamentals of Biology, in Forensic Biology. Im- y & Odontology, Forensic and packaging of biological of lethods : Library extra read ores ure of human hair : Inner a of hair and growth stages. air : medulla, Medullary ind	Instruction mportance of biological Biochemistry and its portance of Forensic Serology. Collection, evidences. Instruction ding and Outer morphology, Comparison of human lex calculation, Cuticle	tional Hour Text Book	rs / Week : 4 Chapters 1 12 2	
Course Unit I Suggest	Content Introd Histor eviden import Anthro preser ed Lear Hair a Hair - bioche and an examin	luction y and so aces. F tance opology vation a ning M and Filt structure mistry himal h nation.	Description to Forensic Biology cope, divisions. Nature and in Fundamentals of Biology, in Forensic Biology. Im- y & Odontology, Forensic and packaging of biological of lethods : Library extra read ores ure of human hair : Inner a of hair and growth stages. air : medulla, Medullary ind Fibre - Classification : Natu	Instruction mportance of biological Biochemistry and its portance of Forensic Serology. Collection, evidences. Instruction ding and Outer morphology, Comparison of human lex calculation, Cuticle ral, Semi-synthetic and	tional Hour Text Book	rs / Week : 4 Chapters 1 12 2	
Course Unit I Suggest	Content Introd Histor eviden import Anthro preser ed Lear Hair a Hair - bioche and ar examin synthe	luction y and so aces. F tance opology vation a ning M and Filt structure mistry himal h nation. tic fib	Description to Forensic Biology cope, divisions. Nature and in Fundamentals of Biology, in Forensic Biology. Im- y & Odontology, Forensic and packaging of biological of lethods : Library extra read ores ure of human hair : Inner a of hair and growth stages. air : medulla, Medullary ind Fibre - Classification : Natures and their properties.	Instruction mportance of biological Biochemistry and its portance of Forensic Serology. Collection, evidences. Instruction ding and Outer morphology, Comparison of human lex calculation, Cuticle ral, Semi-synthetic and Structure analysis for	tional Hour Text Book	rs / Week : 4 Chapters 1 12 2	
Course Unit I Suggest	Content Introd Histor eviden import Anthro preser ed Lear Hair a Hair a bioche and ar examin synthe differe	luction y and so aces. F tance opology vation a ning M and Filt structure mistry nimal h nation. etic fib	Description to Forensic Biology cope, divisions. Nature and in Fundamentals of Biology, in Forensic Biology. Im- y & Odontology, Forensic and packaging of biological of Iethods : Library extra read ores ure of human hair : Inner a of hair and growth stages. air : medulla, Medullary ind Fibre - Classification : Natures and their properties.	Instruction mportance of biological Biochemistry and its portance of Forensic Serology. Collection, evidences. Instruction ding and Outer morphology, Comparison of human lex calculation, Cuticle ral, Semi-synthetic and Structure analysis for e significance	tional Hour Text Book	rs / Week : 4 Chapters 1 12 2	
Course Unit I Suggest II	Content Introd Histor eviden import Anthro preser ed Lear Hair a Hair a bioche and ar examin synthe differe	luction y and so aces. F tance opology vation a ning M and Filt structure mistry nimal h nation. atic fib	Description to Forensic Biology cope, divisions. Nature and in Fundamentals of Biology, in Forensic Biology. Im- y & Odontology, Forensic and packaging of biological of <b>Iethods : Library extra read</b> ores are of human hair : Inner a of hair and growth stages. air : medulla, Medullary ind Fibre - Classification : Natures and their properties. as of fibres and their Forensic	Instruction mportance of biological Biochemistry and its portance of Forensic Serology. Collection, evidences. Instruction ding and Outer morphology, Comparison of human lex calculation, Cuticle ral, Semi-synthetic and Structure analysis for e significance Instruction	tional Hours	rs / Week : 4 Chapters 1 1 2 12 12	

Ш	Botanical Ev Wood : Stru Forensic Imp arrangement a Structure, fu Diatoms : Loo and Forensic	idences cture and Properties. Types, Identification with portance. Leaves : Morphology, types based on and venation with structures and examples. Pollen : nction, Reproduction and Forensic importance. cation, Structure, types, reproduction identification Significance. Limnology : Scope, Forensic	1	3		
	Analysis of di	atoms.				
		Instructio	onal Hours	12		
Suggeste	d Learning M	ethods : Library extra reading				
IV	Entomology Introduction, arthropod. In Coleoptera, c insect succes entomologica	areas and importance. General anatomy of sects of Forensic significance : Order- dipteral, ollembola etc. Estimation of time since death and ssion. Collection, packing and preservation of l evidence.	1	4		
		Instructio	onal Hours	12		
Suggeste	d Learning M	ethods : Video lectures				
V	Wild life For Introduction, protection. W supporting ac Marks : featur to identify : sp marks. Wild I	ensics History and Importance. Laws related to wildlife Yild life protection Act : History, importance and ts and laws. Red data book and wildlife crimes. Pug res and methods for collection. Methods of analysis pecies, gender, age, individual characters from pug ife DNA data base. Ornithology and its application.	1	5		
		Instructio	onal Hours	12		
Suggeste	d Learning M	ethods : Library extra reading				
		T	otal Hours	60		
Text Boo	lks	1. Forensic Biology notes compiled by the Science, Nehru Arts and Science College C	department coimbatore	of Forensic		
Referenc	e Books	<ol> <li>Forensic Biology, S. Chowdhuri, BPRD, New Delhi (1971)</li> <li>Forensic Science Handbook, R. Saferstein, Vol III, Prentice Hall, New Jersey (1993)</li> <li>Criminalistics and Scientific Investigation, Peter B Piaza, Frederick Cunliffe.</li> <li>Forensic Science in Wildlife Investigation, Taylor &amp; Francis (2009)</li> </ol>				
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Tools for Assessment (50 Marks)															
CIA	Ι	CIA	II	CL	A III	Ass	ignme	gnment S			•	Quiz		Total	
8 8					10 8				8			8		5	0
Mapping															
CO\PO PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PSO1 PSO2 PSO3 PSO4 PSO										PSO5					
CO1	Н	Н	L	М	L	М	L	N	Л	-		L	М	-	L
CO2	Н	Н	Н	L	Μ	М	М	Ι		-		Н	Н	Н	Н
CO3	М	Н	L	L	-	М	М	Ι		-		Н	L	-	L
CO4	М	Н	L	Н	-	М	Н	Ι		-		Н	М	М	М
CO5	М	Н	Н	Н	Н	М	М	Ι		-		Н	Н	-	М
H-High; N	A-Mediu	ım; L-L	ow												
	С	ourse	design	ed by	,					۲	Ver	ified	by		

Course	Code			Title				
22U4F	RS301		Skill Based Paper I -	Introduction to Digi	tal Evidence	8		
Semest	er : III		Credits : 3	CIA: 30 Marks	ESE : 45	Marks		
Course	Objectiv	ve	Gain an overview of digita the best practices in dealing	l forensics and digital g with electronic evide	evidence and nces.	understand		
Course	Categor	у	Skill Development					
Develop	oment N	eeds	Global					
Course	Descrip	tion	Digital Forensics is a science computer, mobile phone, preservation, identification	from digital k and the umentation c	media like a process of of computer			
			evidence which can be used	idence which can be used by the court of law.				
Course	Outcom	les	· · · · · · · · · · · · · · · · · · ·	Teaching Methods	Assessme	ent Methods		
CO 1	Become familiar with the conce digital forensics and cyber threats			Lecture/Demonstratio	n Ass	ignment		
CO 2	Understand the various digital forensi investigation methods			Lecture/Demonstratio	n Case	e studies		
CO 3	Gain b and net	asic work	ideas of operating system forensics	Lecture/ Case studie	es Se	eminar		
CO 4	Unders mobile	tand devid	the threats associated with ces.	Lecture/Video lectu	re	Quiz		
CO 5	Acquir in digit	e kno al Fo	wledge in emerging trends rensics	Lecture/Demonstratio	n Ass	ignment		
Offered	by Fo	rensi	ic Science					
Course	Content	t		Instruc	tional Hours	s / Week : 3		
Unit			Description		Text Book	Chapters		
	Introdu	iction	to Digital Evidence					
	Overvie	w of	digital evidence and its impo	rtance in investigation	s			
Ι	Types o	f digi	tal evidence : computer, mol	bile devices, cloud, an	d 1	all		
	social r	nedia	, Legal and ethical consid	erations in collecting	5,			
	analyzir	ng, an	d presenting digital evidence					
				Instruct	ional Hours	9		
Suggest	ed Lear	ning	Methods : Library extra re	ading				
	Fundan	nenta	lls of Digital Forensics					
	Principl	es of	f digital forensics : prese	rvation, identification	ı,			
II	extractio	on, d	ocumentation, and analysis,	Tools and technique	es 1	4		
	used in	digita	al forensics investigations, C	S				
	importa	nce ir	n digital forensics.					
I				Instruct	ional Hours	9		
Suggest	ed Lear	ning	Methods : Library extra re	ading				

	<b>Operating Sy</b>	vstems and File Systems				
ш	Introduction to systems : FA' data carving, Introduction analysis and to forensics	to operating systems and file systems, Types of file T, NTFS, EXT, and HFS, Analysis of file systems : file headers, and footers. Network Forensics : to network forensics and its importance, Packet its role in network forensics, Tools used in network	1	5,6,7		
		Instruction	al Hours	9		
Sugges	ted Learning	Methods : Online training				
	Mobile Devic	es and social media forensics				
IV	Introduction t smartphones, used in mol Forensics; Int of cloud and soc	o mobile device forensics, Types of mobile devices: tablets, and wearable devices. Tools and techniques bile device forensics. Cloud and Social Media roduction to cloud and social media forensics, Types social media platforms, Tools and techniques used in ial media forensics.	1	9,10		
	I	Instruction	al Hours	9		
Sugges	ted Learning	Methods : Hands on training				
V	Emerging Tr Introduction Things, Artif emerging tre digital eviden	to emerging trends in digital evidence : Internet of icial Intelligence, and Blockchain. The impact of nds on digital forensics investigations. Future of ce and digital forensics.	1	12		
		Instruction	al Hours	9		
Sugges	ted Learning	Methods: Video lectures				
		Tot	al Hours	45		
Text B	ooks	<ol> <li>"Digital Forensics: Principles and Practices" K. Srinivas, and V. Kamakshi Prasad</li> </ol>	by Niranj	an Reddy,		
Reference Books		<ol> <li>Digital Forensics and Cyber Crime: Second International ICST Conference, ICDF2C 2010, Abu Dhabi, United Arab Emirates, October 4-6, 2010, Revised Selected Papers" edited by Pavel Gladyshev and Marcus K. Rogers</li> <li>"Handbook of Digital Forensics and Investigation" edited by Eoghan Casey</li> <li>"Cyber Crime and Digital Evidences: Indian Perspective" by S. C. Lakhotia and Abhishek Kumar</li> <li>"Digital Evidence and Computer Crime: Forensic Science, Computers and the Internet" by Eoghan Casey</li> </ol>				
Web. U	J <b>RL</b> s	<ol> <li>What Is Digital Forensics: Process, Tools, an Forensics Overview   RecFaces</li> </ol>	d Types   (	Computer		

Tools for Assessment (30 Marks)														
CIA I CIA II CIA III Assign									Seminar		Quiz		Total	
4		1	4		7		5		5			5	30	
Маррії														
CO \ PO	PO1	PO2	PO3	PO4	PO5	<b>PO6</b>	<b>PO7</b>	PO8	PSO1	PSC	)2	PSO3	PSO4	PSO5
CO1	Н	L	-	-	Н	М	М	L	-	L		L	L	Н
CO2	Н	L	-	Н	Н	М	Н	L	-	Н	[	Н	Н	Н
CO3	Н	L	-	L	Н	М	Μ	L	-	М	[	L	М	Н
CO4	Н	L	-	L	Н	М	М	L	-	М	[	L	Н	Н
CO5	Н	-	М	М	Н	Н	М	Η	-	Μ	[	L	L	L
H-High;	M-Me	dium;	L-Low	7										
		Course	e desig	ned by	y			Verified by						

Course	ourse Code Title											
22U4F	R3ED1		Skill Bas Extra Departmental C	ed Open Elective Course Course : I - Fundamental Due Diligence								
Semest	er : III		Credits : 2	50 Marks								
Course	Objecti	ve	Due diligence is next level forensic science in which the course has an objective of training forensic scientists in preventing potential crimes.									
Course	Catego	ſy	Employability									
Develop Needs	oment		Global									
Course Description			When it come to crimes, p happening. Due diligence from happening.	orivate e look	e sector focuses more s forward to techniq	on preven ues to prev	ting it from vent crimes					
Course	Outcom	ies		Т	eaching Methods	Assessme	nt Methods					
CO 1	Examin diligen	ne th ce	e concept of legal due	Lec	ture	Assi	ssignment					
CO 2	Unders Due Di	tand	the concepts of Financial ce	Lec	tures/ Tutorials	Se	eminar					
CO 3	To g operati	ain onal I	knowledge about the Due diligence	Lec	ture/Demonstration		Quiz					
CO 4	Unders Assess	tand ment	ESG Analysis and Risk	Power point presentation			Activity					
CO 5	Acquir Diliger	e ba nce Pr	asic idea about Due ocess and Best Practices	Vid lect	eo ures/Tutorials	Assi	signment					
Offered	by Fo	rensi	c Science									
Course	Conten	t			Instructio	nal Hours	/ Week : 2					
Unit			Description			Text Book	Chapters					
	Legal D	Due D	iligence									
т	Definiti	on ai	nd importance of Due Di program Structure and Gove	iligeno	ce, Types of Due	1	1					
1	Laws a	nd Re	egulations, Contracts and	1	1							
	Property	y, Liti	gation and Dispute.	0	,							
					Instruction	al Hours	6					
Suggest	ted Lear	ning	Methods: Library extra re	eadin	g							
	Financi	ial Du	ie Diligence		1		2					
11	Financia and For	al Sta	tements Analysis, Cash Flo	OW A1 Dorfor	nalysis, Projections	1	2					
		ccasis	s, valuation Methous, Key I		Indice indicators.	al Hours	6					
Suggest	ted Lear	ning	Methods: PowerPoint pre	senta	tion	ai 110u15	U					
	Operat	ional	Due Diligence									
тт	Busines	s Mo	odel and Strategy, Industr	y and	l Market Analysis,	1	2					
111	Custom	er Ba	ase and Revenue Streams,	, Ope	rations and Supply	1	3					
	Chain, I	Huma	n Resources and Managem	ent.								
~		-			Instruction	al Hours	6					
Suggest	ted Lear	ning	Methods: Video lectures									

IV	ESG Analysis and Risk Assessment Environmental Impact Assessment, Social and Community Impact Assessment, Governance and Ethics Assessment, Due Diligence Report Structure and Content, Risk Assessment and Mitigation Strategies, Due Diligence Checklist and Templates.												4
									Instr	ructiona	l Hours	5	6
Suggest	ted Lea	rning	Metho	ds: Li	ibrary	extra r	eadin	g					
V	Due Diligence Process and Best Practices           Due Diligence Process Steps, Team Structure and Roles, Due           Diligence Best Practices and Lessons Learned, Case Studies and Examples.									, Due es and	1		5
									Insti	ructiona	l Hours	5	6
Suggest	ed Lea	rning	Metho	ds: Po	owerP	oint pre	esenta	tion					
										Tota	l Hours	5	30
Text Books1. Notes compiled by the de Arts and Science College,									ment of mbatore	Forensi e	ic Scien	ce, Nel	ıru
Reference Books1. Due Diligence: An M&A Value Creation A Gole and Paul J. Hilger2. The Art of Due Diligence by Barbara L. Ko 3. Due Diligence Handbook: Corporate Management and Business Planning by Leo									L. Koen porate by Leo F	ig Goverr Dalton	nance,	Risk	
						Мар	ping						
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	Н	-	М	L	L	Μ	Н	-	Н	Н	Н	-
CO2	-	Н	-	М	L	L	Μ	Н	-	Н	Н	М	-
CO3	-	H	-	M	L	L	M	H	-	H	H	H	-
CO4	-	H	-	M		L	H	H	-	H	H	H	-
U Uich		H	- I Lou	M	L	L	M	Н	-	Н	Н	Н	
п-піgn	, M-Me	alum;	L-LOW	/									
		Cours	e desig	ned b	y					Verifie	d by		

Course	e Code		Title								
22U4F	R3ED2		Skill Based Open Elective Course Extra Departmental Course : II - Introduction to Jurisprudence								
Semest	er : III		Credits : 2	50 Marks							
Course	Objecti	ve	Jurisprudence gives an overview and a much more in depth knowledge of or skill in law and the role of law in society.								
Course	Catego	ſy	Knowledge								
Develo	pment N	eeds	National								
Course	Descrip	tion	Jurisprudence explores the concept of law in a logical and philosophical manner. Jurisprudence deals with legal reasoning, legal institutions and legal systems.								
Course	Outcom	nes		Teaching Methods	Assessment	Methods					
CO 1	Unders jurispru	tand	the meaning of e and sources of law.	Lecture	Assig	gnment					
CO 2	Unders rights a	tand and ob	the concepts of legals bligations	Lectures/ Tutorials	Ser	ninar					
CO 3	Acquir persons	e knos $s$ and $j$	properties	Lecture/Demonstration	Q	uiz					
CO 4	Unders and Hu	tand Iman l	the Constitutional laws Rights	Tutorial / Case Studies	Act	tivity					
CO 5	Learn Jurispr	the ( udenc	Contemporary Issues in e	Video lectures / Tutorials	gnment						
Offered	l by Fo	rensi	c Science								
Course	Conten	t		Instructional Hours / Week : 2							
Unit			Description		Text Book	Chapters					
I	Introdu Definiti jurispru Legal P of source interpre recognit	on and dence ositiv ces of tation	to Jurisprudence and So d scope of jurisprudence, H in India, Schools of juris ism, Historical School and f law: primary and secon and the role of the judiciary n Indian legal system	urces of Law istorical development of prudence: Natural Law, Realism. Classification dary sources. Statutory y. Customary law and its	1	2					
				Instructio	onal Hours	6					
Sugges	ted Lear	ning	Methods: Library extra r	eading	[						
п	Legal Rights, Obligations, and ConceptsConcept of legal rights and obligations, Types of legal rights: fundamental rights, legal rights, and human rights, Relationship between rights and duties. Legal concepts: justice, equality, liberty, and rights. Theories of punishment: retribution, deterrence, and rehabilitation Theories of law: analytical, sociological, and natural law.										
				Instructio	onal Hours	6					
a	ted Lear	ning	Methods: PowerPoint pre	esentation							

	Legal	Persor	ns and	Prope	erty									
	Definit	ion ar	nd type	es of	legal j	person	s: natu	ral, art	tificial,	and				
III	juristic	perso	ons. T	ypes	of pr	operty	: mova	able, i	immova	able,	1	2	4,5	
	tangibl	e, and	intang	ible. A	cquisi	and de	evolutio	on of			,			
	proper	ty in Ir	ndian la	aw										
	Instruct sted Learning Methods: PowerPoint presentation											s	6	
Sugges	ted Lea	rning	Metho	ds: Po	owerP	oint p	resenta	tion						
	Consti	tution	al Lav	v and	Huma	n Rigł	nts							
	Histori	cal de	velopn	nent of	the In	dian C	onstitu	tion, F	undame	ental				
	rights and duties of citizens, Powers and functions of the									the				
IV	judiciary and other organs of the government, Principles of										1	,	7,9	
	international law and its recognition in Indian legal system													
	International treaties and their impact on Indian law, Humar													
	rights a	and the	eir reco	gnitio	n in In	dian la	w.							
									Insti	uction	al Hour	s	6	
Sugges	ted Lea	rning	Metho	ds: Ca	ase Stu	udies								
	Conte	mpora	ry Issu	ues in	Jurisp	oruden	ce							
V	Recent	devel	opmen	ts in In	dian ju	ırispru	dence, ]	Interse	ction of	law	1		0	
v	and tec	hnolog	gy, Env	vironm	ental l	orate	1		0					
	social responsibility and business ethics, Law and social justice.													
									Instr	uction	al Hour	S	6	
Sugges	ted Lea	rning	Metho	ods: Vi	ideo le	ectures				<b>70</b>			20	
Sugges	ted Lea	rning	Metho	ods: Vi	ideo le	ctures	(2014)	<b>.</b> .		Tota	al Hour	<b>S</b>	30	
Sugges Text B	ted Lea ooks	rning	Metho 1	ods: Vi	ideo le injape,	N. V.	(2014)	. Jurisp	orudenc	Tota e. Lexis	al Hours Nexis.	s	30	
Sugges Text B	ted Lea	rning	Metho           1           1	ods: Vi . Para . Mał	ideo le injape, najan, T	x N. V. V. D. (	(2014) 2016).	. Jurisp Jurispi	orudenc rudence	Tota e. Lexis and Le	a <b>l Hour</b> Nexis. gal Theo	s	30 stern	
Sugges Text B	ted Lea	rning	Metho           1           1           2	ods: Vi . Para . Mał Boo Para	ideo le injape, najan, <sup>*</sup> ik Com	N. V. N. V. V. D. ( pany. N V	(2014) 2016). (2015)	. Jurisp Jurisp An Ir	orudenc rudence	<b>Tota</b> e. Lexis and Le	<b>al Hour</b> Nexis. gal Theo urisprud	s	30 stern	
Sugges Text B	ted Lea	rning	Metho           1           1           2	. Para . Para . Mał Boo . Para Leg	ideo le injape, najan, ik Com injape, al The	N. V. V. D. ( pany. N. V. ory. Le	(2014) 2016). (2015) exisNex	. Jurisp Jurisp . An In cis.	orudence rudence ntroduct	Tota e. Lexis and Le ion to J	al Hours Nexis. gal Theo urisprud	s bry. Eas	30 stern nd	
Sugges Text B Referen	ted Lea	rning ks	Metho           1           2           3	<ul> <li>Para</li> <li>Para</li> <li>Mah Boo</li> <li>Para Leg</li> <li>Ver</li> </ul>	ideo le injape, najan, T ik Com injape, al The ma, S.	N. V. V. D. ( pany. N. V. ory. Le K. (20	(2014) 2016). (2015) exisNex 19). Ju	. Jurisp Jurispr . An In tis. rispruc	orudenc udence ntroduct lence ar	Tota e. Lexis and Le ion to J nd Lega	al Hours Nexis. gal Theo urisprud l Philoso	s ory. Eas ence ar ophy.	30 stern nd	
Sugges Text B	ooks	rning	Metho           1           2           3	eds: Vi . Para . Mał Boo . Para Leg . Ver Uni	injape, najan, k k Con injape, al The ma, S. versal	ctures N. V. V. D. ( pany. N. V. ory. Le K. (20 Law P	(2014) 2016). (2015) exisNex 19). Jui ublishin	. Jurisp Jurispi . An In tis. rispruc ng.	orudence rudence atroduct lence ar	Tota e. Lexis and Le ion to J nd Lega	al Hours Nexis. gal Theo urisprud l Philoso	s bry. Easence ar	30 stern nd	
Sugges Text B	ooks	<u>rning</u>	Metho           1           2           3           4	eds: Vi Para . Para Boo . Para Leg . Ver Uni . Sing	ideo le injape, najan, k k Com injape, al The ma, S. versal gh, A.	ctures N. V. D. ( pany. N. V. ory. La K. (20 Law P (2019)	(2014) 2016). (2015) exisNex 19). Ju ublishin . Introd	. Jurisp Jurisp . An In tis. rispruc ng. uction	orudence rudence atroduct lence ar to Juris	Tota e. Lexis and Leg ion to J nd Lega	al Hours Nexis. gal Theo urisprud l Philoso ce and L	s ory. Ease ory. Ease ory. Ease or an arrow of the second	30 stern nd heory.	
Sugges Text B	ooks	ks	Metho           1           1           2           3           4	eds: Vi . Para . Mał Boo . Para Leg . Ver Uni . Sing East	ideo le injape, najan, T k Con injape, al The ma, S. versal gh, A. tern Bo	ctures N. V. V. D. ( pany. N. V. ory. La K. (20 Law P (2019) pok Co Ma	(2014) 2016). (2015) exisNex 19). Ju ublishin . Introd oppany	. Jurisp Jurisp . An In tis. rispruc ng. uction	orudence rudence atroduct lence ar to Juris	Tota e. Lexis and Le ion to J nd Lega	al Hours Nexis. gal Theo urisprud l Philoso ce and L	s ory. Eas ence ar ophy. .egal Tl	30 stern nd heory.	
Sugges Text B Referen	nce Boo	rning ks PO2	Metho           1           1           2           3           4           PO3	ods: Vi Para Annu Para Leg Vert Uni Sing East PO4	ideo le injape, najan, k k Com injape, al The ma, S. versal gh, A. tern Bo	ctures N. V. D. ( pany. N. V. ory. La K. (20 Law P (2019) pok Co Ma PO6	(2014) 2016). (2015) exisNex 19). Jui ublishin . Introd mpany <b>pping</b> <b>PO7</b>	. Jurisp Jurispi . An In tis. rispruc ng. uction	orudence rudence atroduct lence ar to Juris <b>PSO1</b>	Tota e. Lexis and Le ion to J nd Lega sprudent	al Hour Nexis. gal Theo urisprud l Philoso ce and L	s ory. Eas ence ar ophy. .egal Tl PSO4	30 stern nd heory.	
Sugges Text B Referent	nce Boo	rning ks PO2 -	Metho           1           1           2           3           4           PO3	ods: Vi Para . Para Boo . Para Leg . Ver Uni . Sing East PO4 -	ideo le injape, najan, v k Com injape, al The ma, S. versal gh, A. tern Bo PO5 H	ctures N. V. V. D. ( pany. N. V. ory. Le K. (20 Law P (2019) bok Cc Ma PO6 -	(2014) 2016). (2015) exisNex 19). Ju ublishin . Introd mpany <b>pping</b> <b>PO7</b>	. Jurisp Jurisp . An In tis. rispruc ng. uction <b>PO8</b>	orudence rudence atroduct lence ar to Juris <b>PSO1</b> H	Tota e. Lexis and Leg ion to J nd Lega sprudence PSO2	al Hours Nexis. gal Theo urisprud l Philoso ce and L PSO3 M	s ory. Ease ory. Ease ory. Ease ory. Ease or an ophy. Description of the second	30 stern nd heory. PSO5	
Sugges Text B Referent	nce Boo	rning ks PO2 - -	Metho 1 1 2 3 4 PO3 - -	ods: Vi Para Mah Boo Para Leg Ver Uni Sing East PO4 -	ideo le injape, najan, v k Com injape, al The ma, S. versal gh, A. tern Bo PO5 H H	ctures N. V. V. D. ( npany. N. V. ory. La K. (20 Law P (2019) book Co Ma PO6 - -	(2014) 2016). (2015) exisNex 19). Ju ublishin . Introd mpany <b>pping</b> <b>PO7</b> -	. Jurisp Jurispi . An In tis. rispruc ng. uction <b>PO8</b>	orudence orudence atroduct lence ar to Juris <b>PSO1</b> H H	Tota e. Lexis and Leg ion to J nd Lega sprudent PSO2	al Hour Nexis. gal Theo urisprud l Philoso ce and L PSO3 M M	s ory. Eas ence ar ophy. .egal Tl .egal Tl .egal Tl	30 stern nd neory. PSO5 - -	
Sugges Text B Referent	ted Lea	rning ks PO2 - - -	Metho 1 1 2 3 4 PO3 - - -	ods: Vi Para . Para Boo . Para Leg . Ver Uni . Sing East PO4 - -	ideo le injape, najan, k k Con injape, al The ma, S. versal gh, A. iern Bo PO5 H H H H	ctures N. V. D. ( pany. N. V. ory. Le K. (20 Law P (2019) book Cc Ma PO6	(2014) 2016). (2015) exisNex 19). Ju: ublishin . Introd mpany <b>pping</b> <b>PO7</b> - - -	. Jurisp Jurisp Jurisp . An In tis. rispruc ng. uction <b>PO8</b> - -	prudence rudence atroduct lence ar to Juris <b>PSO1</b> H H H	Tota e. Lexis and Le ion to J nd Lega sprudent PSO2	Al Hour Nexis. gal Theo urisprud l Philoso ce and L PSO3 M M M	s ory. Eas ence ar ophy. egal Tl PSO4 H H H	30 stern nd neory. PSO5 - - -	
Sugges Text B Referent CO\PO CO1 CO2 CO3 CO4	ted Lea	rning ks PO2 - - - -	Metho 1 1 2 3 4 PO3 - - - - - -	ods: Vi Para Mah Boo Para Leg Veri Uni Sing East PO4 - - - -	ideo le injape, najan, ' k Com injape, al The ma, S. versal gh, A. tern Bo PO5 H H H H H	ctures N. V. V. D. ( npany. N. V. ory. La K. (20 Law P (2019) book Co Ma PO6 - - - -	(2014) 2016). (2015) exisNex 19). Ju ublishin . Introd mpany <b>pping</b> <b>PO7</b> - - - -	. Jurisp Jurispi . An In tis. rispruc ng. uction PO8 - - - -	Prudence Tudence Introduct lence ar to Juris PSO1 H H H H	Tota e. Lexis and Leg ion to J nd Lega sprudent PSO2 - - - -	al Hour Nexis. gal Theo urisprud l Philoso ce and L PSO3 M M M M	s ory. Eas ence ar ophy. egal Tl PSO4 H H H H	30 stern nd heory. PSO5 - - - - -	
Sugges Text B Referent CO\PO CO1 CO2 CO3 CO4 CO5 H_High	ted Lea	rning ks PO2 - - - - - -	Metho 1 1 2 3 4 PO3 - - - - - - - - - - - - -	ods: Vi Para . Para Boo . Para Leg . Ver Uni . Sing East PO4 - - - - - -	ideo le injape, najan, k k Com injape, al The ma, S. versal gh, A. tern Bo PO5 H H H H H H	ctures N. V. D. ( pany. N. V. ory. Le K. (20 Law P (2019) book Cc Ma PO6	(2014) 2016). (2015) exisNex 19). Ju: ublishin . Introd ompany pping PO7 - - - - - - - - -	. Jurisp Jurispi . An In tis. rispruc ng. uction - - - - - - - - - - -	Prudence rudence atroduct lence ar to Juris PSO1 H H H H H	Tota e. Lexis and Le ion to J nd Lega sprudent prudent PSO2 - - - - - - - -	Al Hour Nexis. gal Theo urisprud l Philoso ce and L PSO3 M M M M M M	s Dry. Eas ence ar Dphy. Legal Tl H H H H H	30 stern nd heory. PSO5 - - - - - - - - -	
Sugges Text B Referent CO \ PO CO1 CO2 CO3 CO4 CO5 H-High;	ted Lea ooks nce Boo M M M M M M M M	rning ks PO2 - - - - ium; L-	Metho           1           1           2           3           4           PO3           -      -           -	ods: Vi         . Para         . Mał         Boo         . Para         Leg         . Veri         Uni'         . Sing         East         PO4         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -	ideo le injape, najan, k k Com injape, al The ma, S. versal gh, A. kern Bo PO5 H H H H H H	ctures       N. V.       V. D. (       upany.       ny. V.       ory. Le       K. (20)       Law P       (2019)       book Co       Ma       PO6       -       -       -       -       -       -       -       -       -	(2014) 2016). (2015) exisNex 19). Ju: ublishin . Introd mpany <b>pping</b> <b>PO7</b> - - - - - -	. Jurisp Jurisp Jurisp . An In tis. rispruc ng. uction <b>PO8</b> - - - - - - -	prudence rudence atroduct lence ar to Juris <b>PSO1</b> H H H H H	Tota e. Lexis and Leg ion to J nd Lega sprudent PSO2 - - - - -	Al Hour Nexis. gal Theo urisprud l Philoso ce and L M M M M M M	s ory. Eas ence ar ophy. egal Tl PSO4 H H H H H H	30 stern nd neory. PSO5 - - - - - - -	
Sugges Text B Referent CO\PO CO1 CO2 CO3 CO4 CO5 H-Hight	ted Lea ooks nce Boo M M M M M M M M C	rning ks PO2 - - - - ium; L- ourse c	Metho           1           1           2           3           4           PO3           -      -           -	ods: Vi Para A Mah Booo Para Leg Verr Uni Sing East PO4 - - - - - - - - - - - - -	ideo le injape, najan, ' k Com injape, al The ma, S. versal gh, A. tern Bo PO5 H H H H H H	ctures N. V. N. V. N. V. N. V. Ory. La K. (20 Law P (2019) book Co Ma PO6	(2014) 2016). (2015) exisNex 19). Ju ublishin . Introd mpany <b>pping</b> <b>PO7</b> - - - - - -	. Jurisp Jurispi . An In tis. rispruc ng. uction PO8 - - - - -	prudence rudence atroduct lence ar to Juris <b>PSO1</b> H H H H H	Tota e. Lexis and Lega ion to J nd Lega sprudend PSO2 - - - - - - - - - -	Al Hour: Nexis. gal Theo urisprud l Philoso ce and L PSO3 M M M M M M M	s ory. Eas ence ar ophy. egal Tl H H H H H	30 stern nd heory. PSO5 - - - - - - -	
Sugges Text B Referent CO\PO CO1 CO2 CO3 CO4 CO5 H-Hight	ted Lea ooks nce Boo PO1 M M M M M M M Co	rning ks ks - - - - ium; L- ourse c	Metho 1 1 2 3 4 PO3 - - - - - - - - - - - - -	ods: Vi Para A Para Boo Para Leg Vert Uni Sing East PO4 - - - ed by	ideo le injape, najan, k k Com injape, al The ma, S. versal gh, A. tern Bo PO5 H H H H H H	ctures         N. V.         V. D. (         ipany.         ipany.         N. V.         ory. La         K. (20         Law P         (2019)         bok Co         Ma         PO6         -         -         -         -         -         -	(2014) 2016). (2015) exisNex 19). Ju: ublishin . Introd mpany <b>pping</b> <b>PO7</b> - - - - -	. Jurisp Jurispi . An In tis. risprucing. uction PO8 - - - - -	Prudence rudence atroduct lence ar to Juris PSO1 H H H H H V	Tota e. Lexis and Lega ion to J nd Lega sprudend PSO2 - - - - - - - -	Al Hours Nexis. gal Theo urisprud l Philoso ce and L M M M M M M M	s ory. Eas ence ar ophy. legal Tl H H H H H	30 stern nd heory. PSO5 - - - - -	
Sugges Text B Referent CO \ PO CO1 CO2 CO3 CO4 CO5 H-High;	ted Lea ooks nce Boo M M M M M M M Co	rning ks ks - - - - - - - - - - - - - - - - -	Metho           1           1           2           3           4           PO3           -      -           -	ods: Vi Para Mah Boo Para Leg Ver Uni Sing East PO4 - - - - ed by	ideo le injape, najan, ' k Com injape, al The ma, S. versal gh, A. tern Bo PO5 H H H H H H	ctures N. V. D. ( pany. N. V. ory. Le K. (20 Law P (2019) bok Cc Ma PO6	(2014) 2016). (2015) exisNex 19). Ju ublishin . Introd mpany <b>pping</b> <b>PO7</b> - - - - - -	. Jurisp Jurisp Jurisp . An In tis. rispruc ng. uction - - - - - -	prudence rudence atroduct lence ar to Juris <b>PSO1</b> H H H H H V	Tota e. Lexis and Lega ion to J nd Lega sprudend PSO2 - - - - - - - - -	Al Hours Nexis. gal Theo urisprud l Philoso ce and L PSO3 M M M M M M M	s ory. Eas ence ar ophy. egal Tl PSO4 H H H H H	30 stern nd heory. PSO5 - - - - - - - - -	
Course	e Code		Title											
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22U3F	RC407		Core Paper VII - E	iometrics and Impre	ssion Analysi	S								
Semest	er : IV		Credits : 4	CIA : 50 Marks	ESE : 50	Marks								
Course	Objectiv	ve	To impart knowledge and	l skill of developing a	and identifyin	g individual								
C	C		based on biometrics and o	ther impressions.										
Course	Categor	y	Employability											
Develo	pment N	eeds	Global Diamatria impressions are	unique te evenu india	dual Dr. laar	mina nuonau								
Course	Descrip	tion	techniques to develop and the potential culprit behind	compare them, studer l crimes.	its will be abl	e to identify								
Course	Outcom	es		Teaching Methods	Assessme	ent Methods								
CO 1	Locate	, iden re foo	tify, develop, preserve and twear impression.	Lecture/Demonstration	on Ass	signment								
CO 2	Locate	, iden re var	tify, develop, preserve and ious biometric impression.	Lecture/ Case studies	Cas	e studies								
CO 3	Have a and sci	stron	g idea about the formation behind fingerprints.	Lecture/Demonstration	on S	eminar								
CO 4	Locate, compar	, iden re fing	tify, develop, preserve and gerprints	Lecture/Video lecture	2	Quiz								
CO 5	To ana signific	lyse cance.	bite marks for its forensic	Lecture/Demonstration	on Ass	signment								
Offered	l by 🛛 Fo	rensi	c Science											
Course Content Instru														
Course	Content	t		Instru	ictional Hour	rs / Week: 5								
Course Unit	Content	t	Description	Instru	ictional Hour Text Book	rs / Week: 5 Chapters								
Course Unit	Content	t ar Im	Description	Instru	Ictional Hour Text Book	rs / Week: 5 Chapters								
Course Unit	Content Footwe	ar Im	<b>Description</b> <b>pressions</b> Forms of footwear impres	Instru sions, Information fro	m	rs / Week: 5 Chapters								
Course Unit	<b>Footwea</b> Introduce footwea	ar Im ar im	<b>Description</b> <b>pressions</b> Forms of footwear impres pressions, Location and	Instru- sions, Information fro recovery of footwe	m ar	rs / Week: 5 Chapters								
Course Unit I	<b>Footwe</b> Introduce impress	ar Im ction, r im ions,	<b>Description</b> <b>pressions</b> Forms of footwear impres pressions, Location and Enhancement Methods, Pr	Instru- sions, Information fro recovery of footwe eparation of Exemplan	m rs, 1 rs, artic	rs / Week: 5 Chapters								
Course Unit I	<b>Footwea</b> Introduce impress The exa	ar Im etion, r im ions, minat	<b>Description</b> <b>pressions</b> Forms of footwear impres pressions, Location and Enhancement Methods, Pri ion process, Case histories.	Instru- sions, Information fro recovery of footwe eparation of Exemplan Lip Prints- Introductio	m rs, n,	rs / Week: 5 Chapters								
Course Unit I	<b>Footwea</b> Introduce footwea impress The exa Classifie	ar Im ction, r im ions, minat cation	<b>Description</b> <b>pressions</b> Forms of footwear impres pressions, Location and Enhancement Methods, Pr ion process, Case histories. , History, Scope, Applicatio	Instru- sions, Information fro recovery of footwe eparation of Exemplan Lip Prints- Introduction on in crime detection	m ar 1 n,	1								
Course Unit I	<b>Footwea</b> Introduce footwea impress The exa Classifie	t ar Im ction, r im ions, minat cation	<b>Description</b> <b>pressions</b> Forms of footwear impressions, Location and Enhancement Methods, Prion process, Case histories. a, History, Scope, Application	Instru sions, Information fro recovery of footwe eparation of Exemplan Lip Prints- Introduction on in crime detection Instruct	ictional Hour Text Book m ar rs, 1 n, 1 tional Hours	<pre>rs / Week: 5 Chapters 1 1 15</pre>								
Course Unit I Sugges	<b>Footwea</b> Introduce footwea impress The exa Classifie ted Lear Miscell	ar Im ction, r im ions, minat cation ning	Description pressions Forms of footwear impres pressions, Location and Enhancement Methods, Pr ion process, Case histories. , History, Scope, Application Methods: Library extra results	Instruction sions, Information fro recovery of footwe eparation of Exemplan Lip Prints- Introduction on in crime detection Instruct eading	ictional Hour Text Book m ar rs, 1 n, 1 iional Hours	rs / Week: 5 Chapters 1 15								
Course Unit I Sugges	Content Footwea Introduc footwea impress The exa Classifie ted Lear Miscella Ear Prin	ar Im ction, r im ions, minat cation ning aneou	Description pressions Forms of footwear impres pressions, Location and Enhancement Methods, Pr ion process, Case histories. , History, Scope, Application Methods: Library extra results and the prints	Instru- sions, Information fro recovery of footwe eparation of Exemplan Lip Prints- Introduction on in crime detection Instruct eading	r.	rs / Week: 5 Chapters 1 15								
Course Unit I Sugges	Content Footwea Introduc footwea impress The exa Classifie ted Lear Miscella Ear Prin ear prin	t   ar Im ction, r im ions, minat cation ning aneou nts- Ir int	Description pressions Forms of footwear impres pressions, Location and Enhancement Methods, Pri ion process, Case histories. A, History, Scope, Application Methods: Library extra re- as prints htroduction, History, Ear pri ocation. Producing stan	Instruction sions, Information fro recovery of footwe eparation of Exemplan Lip Prints- Introduction on in crime detection Instruct ading ints Morphology of ea dards from suspect	r, S.	rs / Week: 5 Chapters 1 1 15								
Course Unit I Sugges	Content Footwea Introduc footwea impress The exa Classifie ted Lear Miscella Ear Prir ear prir Identifie	ar Im ction, r im ions, minat cation ning ning ints- Ir int l cation	Description pressions Forms of footwear impres pressions, Location and Enhancement Methods, Pri- ion process, Case histories. A, History, Scope, Application Methods: Library extra re- as prints atroduction, History, Ear pri- ocation, Producing stan and comparison, Palm print	sions, Information fro recovery of footwe eparation of Exemplan Lip Prints- Introduction on in crime detection Instruct eading ints Morphology of ea dards from suspect at: Introduction, Histor	r, es, y.	rs / Week: 5 Chapters 1 15								
Course Unit I Sugges	Content Footwea Introduc footwea impress The exa Classifie ted Lear Miscella Ear Prir ear prir Identific Scope, A	ar Im ction, r im ions, minat cation ning aneou nts- Ir int l cation	Description pressions Forms of footwear impress pressions, Location and Enhancement Methods, Pre- ion process, Case histories. A, History, Scope, Application Methods: Library extra re- as prints atroduction, History, Ear pro- ocation, Producing stand and comparison. Palm prin- cation in crime detection, pro-	Instruction sions, Information fro recovery of footwe eparation of Exemplan Lip Prints- Introduction on in crime detection Instruction ading ints Morphology of ea dards from suspect at; Introduction, Histor reservation and lifting	r, s, y, of 1	rs / Week: 5 Chapters 1 15 2								
Course Unit I Sugges	Content Footwea Introduc footwea impress The exa Classifie ted Lear Miscella Ear Prir ear pri Identific Scope, A various	ar Im ction, r im ions, minat cation nts- Ir int I cation Applic print	Description pressions Forms of footwear impress pressions, Location and Enhancement Methods, Pre- ion process, Case histories. A, History, Scope, Application Methods: Library extra re- as prints attroduction, History, Ear pro- ocation, Producing stant and comparison. Palm prints cation in crime detection, pro- s, Present of expert evid	Instruction sions, Information fro recovery of footwe eparation of Exemplan Lip Prints- Introduction on in crime detection Instruction ading ints Morphology of ea dards from suspect at; Introduction, Histor reservation and lifting ence in court, Judici	r, s, y, of al logi	Chapters         1         1         15         2								
Course Unit I Sugges	Content Footwea Introduc footwea impress The exa Classifie ted Lear Miscella Ear Prir ear prir Identific Scope, A various acceptar	ar Im ction, r im ions, minat cation nts- Ir int l cation Applic print nce of	Description pressions Forms of footwear impress pressions, Location and Enhancement Methods, Pri ion process, Case histories. A, History, Scope, Application Methods: Library extra reas is prints attroduction, History, Ear pri ocation, Producing stan and comparison. Palm print cation in crime detection, priss, Present of expert evid f miscellaneous prints. Tyre	Instruction sions, Information fro recovery of footwe eparation of Exemplan Lip Prints- Introduction on in crime detection Instruction adding ints Morphology of ea dards from suspect at; Introduction, Histor reservation and lifting ence in court, Judici e marks - Development	r, s, y, of al hours	Chapters         1         1         15         2								
Course Unit I Sugges	Content Footwea Introduc footwea impress The exa Classifie ted Lear Miscella Ear Prir ear prir Identific Scope, A various acceptar	ar Im ction, r im ions, minat cation ning aneou nts- Ir int I cation Applic print nce of son a	Description pressions Forms of footwear impress pressions, Location and Enhancement Methods, Pre- ion process, Case histories. A, History, Scope, Application Methods: Library extra re- as prints and comparison. Palm prints by the prints of expert evides and forensic significance.	Instruction sions, Information fro recovery of footwe eparation of Exemplan Lip Prints- Introduction on in crime detection Instruction ending ints Morphology of ea dards from suspect at; Introduction, Histor reservation and lifting ence in court, Judici e marks - Developmen	r, ctional Hour Text Book m ar s, 1 1 tional Hours tional Hours r, s, y, 1 al at, 1 1	rs / Week: 5 Chapters 1 15 2								
Course Unit I Sugges	Content Footwea Introduc footwea impress The exa Classifie ted Lear Miscella Ear Prir ear pri Identific Scope, A various acceptar compari	ar Im ction, r im ions, minat cation aneou nts- Ir int I cation Applic print nce of ison a	Description pressions Forms of footwear impress pressions, Location and Enhancement Methods, Pre- ion process, Case histories. A, History, Scope, Application Methods: Library extra re- is prints and comparison. Palm print cation in crime detection, pre- s, Present of expert evid f miscellaneous prints. Tyre nd forensic significance.	Instruct sions, Information fro recovery of footwe eparation of Exemplan Lip Prints- Introduction on in crime detection Instruct ading ints Morphology of ea dards from suspect at; Introduction, Histor reservation and lifting ence in court, Judici e marks - Developmen	r, s, y, of al hours itional Hours itional Hours itional Hours itional Hours	Chapters         1         1         15         2         15								

	Fingerprin	ts					
	Introduction	n, History	and developm	ent of fingerpri	nts, Structure of	f	
	skin, Eler	nents c	of fingerprint	ing: ridge p	atterns, ridge	e	
	characterist	ics, Poro	scopy. Classifi	ication of finge	erprint patterns	:	
	single finge	ernrint cl	lassification H	Ienry system o	of classification	1	
тт	(Primary to	tertiary	and key class	ification) exter	nsion of Henry	7 1	2
111	(I IIIIary to	locaificat	and Key class	aduation Hist	nsion of field		3
	system of C				ory, Operations	,	
	Search tech	nology,	Administration	and networkin	ig, Advantages	•	
	Basics of tal	king inke	d prints, taking	inked prints of	living and dead	:	
	Plain and re	olled prin	nts, other devi	ces and materia	al for recording	5	
	prints.						
					Instructio	nal Hour	s 15
Sugges	ted Learning	g Methoo	ds: Video lectu	ires			
	Fingerprin	t as evid	ence				
	Types of	evidenti	ary fingerprin	nts. Developm	ent of laten	t	
	fingerprints	: Physic	cal and chem	nical methods.	Developmen	t	
	techniques	on porou	is and non-por	ous surfaces, D	Development or	ı	
IV	adhesive s	surface,	Development	with blood	l and grease	2 1	4
	contaminati	on. Deve	lopment of late	ent fingerprints	on dead body.		
	Visualizatio	n metho	ds of illuminat	ion. Photograph	v, Preservation	n	
	and lifting	of fir	gerprints. Digi	ital imaging	of fingerprint		
	processing	of finger	prints and their	enhancement	or80-17		
	processing				Instructio	nal Hour	15
Sugges	ted Learning	g Metho	ds: Laborator	v practice	111501 40010	<u></u>	
	Bite Marks	;	•				
	Introduction	n, Histor	y, Scope, Ap	plication in c	rime detection		
v	Preservation	n and li	fting of vario	ous prints. Pre	sent of exper	t 1	5
	evidence in	court. Ju	dicial acceptan	ce of miscellan	eous prints.	-	C C
	Forensic sig	nificance	e of retinal scar	n and gait patter	n.		
	1 0101010 018			8 P	Instructio	nal Hour	15
Sugges	ted Learning	g Metho	ds: Online trai	ining	mstructio	nur mour,	
				8	 Te	otal Hours	s 75
Toy P	ooks	1.	Biometrics	notes compiled	l by the Depa	rtment of	Forensic
I ext D	OOKS		Science				
		1.	Mehta, M.K;	Identification of	of Thumb impr	ession & c	ross
			examination	of Fingerprints			
Refere	nce Books	2.	Chatterjee, S	.K; Speculation	in Fingerprint	Identifica	tion,
		2	Jantralekha p	orinting Works,	Kolkata, 1981.		
		3.	Cowger Jame	es F; Friction R	idge Skin- Con	nparison	2
<b>XX</b> 7 <b>X -</b>				· · · · ·		, IN I, 199.	)
web. l	JKLS	1.	https://www.	ojp.gov/pdffiles	s1/n1j/225320.p	ar	
			Tools for As	ssessment (50 I	Marks)		
CL	AI C		CIAIII	Assignment	Seminar	Quiz	Total
8	5	8	10	8	8	8	50

	Mapping												
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Н	Н	Н	Н	-	-	М	L	-	Н	Н	-	-
CO2	Н	Н	Н	Н	-	-	Η	L	-	Н	Н	-	-
CO3	Н	Н	Н	Н	М	-	L	L	-	Н	М	Μ	-
CO4	Н	Н	Н	Н	-	-	М	L	-	Н	Н	-	-
CO5	Н	Н	Н	Н	-	-	Н	L	-	Н	Н	-	-
H-High	; M-Me	dium;	L-Low	7									
	(	Course	e desig	ned by	y					Verifie	d by		

Course	Cod	e		Title						
22U3FI	RP408	8	Core Paper VIII - Biometr	ics and Impression	n Analys	sis Practical				
Semest	er : I	V	Credits : 4	CIA : 50 Marks	ESI	E : 50 Marks				
Course	Obje	ctive	The students will under Identifying fingerprints, th which can be used to estab	The students will understand & perform experiments relating to Identifying fingerprints, their patterns, footprints, tyre marks, lip prints which can be used to establish the identity of a person.						
Course	Categ	gory	Employability							
Develop	ment	Needs	Global							
Course	Desci	ription	Scientific biometric tools human identity. By learnir biometrics, students will b crimes.	Scientific biometric tools and its applications can be used to esta human identity. By learning proper techniques to develop and con biometrics, students will be able to identify the potential culprit be crimes.						
Course	Outco	omes		Teaching Methe	ods As	ssessment Methods				
CO 1	Lear from meth	n to sea n variou nods	arch and develop fingerprin as surfaces using differe	ts nt Demonstration Video Lessons	n / S	Practical				
CO 2	Lear	n to iden	tify fingerprint patterns	Teaching Methods       Assessment Methods         Teaching Methods       Assessment Methods         erprints ifferent       Demonstration / Video Lessons       Practical         Demonstration       Practical         gerprint       Demonstration / Video Lessons       Practical         ons       Demonstration / Video Lessons       Practical         ons       Demonstration / Video Lessons       Practical         ased on       Demonstration / Video Lessons       Practical         Instructional Hours / Week : 4       Experiment         ngerprints in FBI card and to identify patterns.       Inspected scene/object						
CO 3	CO 2Learn to identify fingerprint patternsDemonstrationPracticalCO 3Understand the system of fingerprint classificationDemonstration / Video LessonsPracticalCO 4Develop footprints and tyre impressionsDemonstration / Video LessonsPractical									
CO 4	Deve	elop foot	prints and tyre impressions	Demonstration Video Lessons	n / S	Practical				
CO 5	Unic lip p	que ident rints	ification of a person based of	on Demonstration Video Lessons	n / S	Practical				
Offered	by	Forensi	e Science							
Course	Cont	ent		Instru	ictional	Hours / Week : 4				
S. No	).		Ez	periment						
1		To take	plain and rolled inked fingerp	rints in FBI card an	d to iden	ntify patterns.				
2		Search f	or fingerprints from a suspect	ed scene/object						
3		To perfo	rm ridge counting and whorl	tracing from a given	n fingerp	print sample.				
4		Classific	ation of fingerprints using He	enry Ten Digit Syste	em.					
5		Develop method.	ment of fingerprints from por	ous/ non-porous su	rface usi	ng powdering				
6		Develop methods	ment of fingerprints from por	ous/ non-porous su	rface usi	ng chemical				
7		Develop	ment of footprints from mud.							
8		Develop	oment of tyre impressions.							
9		Develop	ment of lip prints.							
10		Compari fingerpr	son of fingerprint using ridge int samples.	characteristic or m	inutiae f	from a given				
					Т	OTAL 60 Hours				

NASC 2022

	Tools for Assessment (50 Marks)														
Analy Ski	vtical ill	I Perfo	.ab rmanc	e Int	ference	]	Fest I	Te	st II	Obser	rvation	То	tal		
8			8		8		10	-	10		6	5	0		
	Mapping														
CO \ PO	PO1	PO2	PO3	PO4	PO5	<b>PO6</b>	PO7	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	Н	Н	Н	Н	L	-	М	-	-	Н	Н	М	-		
CO2	Н	Н	L	Н	L	-	М	-	-	Н	Н	М	-		
CO3	Н	Н	L	Н	М	-	М	-	-	Н	Н	М	-		
CO4	Н	Н	Μ	Н	L	-	Н	-	-	Н	Н	М	-		
CO5	Н	Н	Н	Н	М	-	М	-	-	Н	Н	М	-		
H-Hig	h; M-1	Mediun	n; L-Lo	W											
		Cours	se desig	gned b	y					Verifie	d by				

Course	e Code				Title			
22U3F	RA404		Allied Paper	·IV	- Instrumental Technic	ques - II		
Semest	er : IV		Credits : 4	(	CIA : 50 Marks	ESE : 50	) Marks	
Course	Objectiv	ve	To impart knowledge a commonly used in fore	nd s nsic	kill of handling various science.	instruments	that are	
Course	Categor	·y	Employability					
Develop	oment N	eeds	Global					
Course	Descrip	tion	Instruments are basic to designed to provide in a instruments used in fore	ools dept ensi	used in every analytical h theoretical knowledge c labs.	science. Th about the v	is course is arious	
Course	Outcom	ies			<b>Teaching Methods</b>	Assessme	ent Methods	
CO 1	Unders instrum	tand t nents.	he working of vario	ous	Lecture/Demonstration	As	ssignment	
CO 2	To cho various	ose the forens	appropriate instrument fic tests.	for	Lecture/ Case studies	Ca	se studies	
CO 3	To o chroma	calibrat atograph	e and use vario nic techniques.	ous	Lecture/Demonstration	5	Seminar	
CO 4	To ope used in	rate va forensi	rious types of microscop	pes	Lecture/Video lecture		Quiz	
CO 5	Have a immun applica	a deep ochemi tions	understanding of vario cal techniques and	ous its	Lecture/Demonstration Assignment			
Offered	l by 🛛 Fo	orensic	Science					
Course	Content	t			Instru	ctional Ho	urs / Week : 4	
Unit			Description	l		Text Book	Chapters	
I	Basic p Sample dilution of Biolo Physiolo centrifu types of centrifu centrifu	rinciple prepar . Qualit ogical at ogical gation, centrif gation, ge.	es of sampling ation: Stock solution, st ative and quantitative est nd Biochemical analysis: Solution. Centrifugatio Svedberg's unit, densit uges (based on size, type refrigerated centrifuge	tanda imat pH on: ty g of r es, s	ard solution and serial tion. General Principles and Buffers, pH Meter, Basic principles of gradient centrifugation, rotors and usage), ultra- safety maintenance of	1	1	
					Instruction	nal Hours	12	
Suggest	ted Lear	ning M	lethods: Library extra r	read	ing			
Π	ed Learning Methods: Library extra reading         Microscopy         Lens systems and its working. Principle of microscopy, Abbe         equation - Principle, ray diagrams, working, sample preparation and         applications of following in Forensic Science. Simple microscope         and Compound microscope, Stereo microscope, Comparison         microscope, Phase contrast microscope.					1	2	
					Instruction	nal Hours	12	
Suggest	ted Lear	ning M	ethods: Video lectures					

NASC 20

	Advan	ced mic	rosco	nv				
III	Princip applica micros electro (TEM)	ole, ray ations of cope, Flu n micro Atomic	dia foll oresc scope	grams, work owing in Fore cent microscop (SEM), Tra e microscope (	ing, sample pensic Science : e, Infrared micro nsmission elect	preparation a Polarized lig pscope, Scanni tron microsco	nd ght 1 ng pe	3
	(1201)	, 1 1001110	1010			Instruct	ional Hours	12
Sugges	ted Lea	rning M	ethor	ls. Hands on t	training	mstruct	ional mours	12
Dugges	Chron	natograr	hv	s. Hunus on	u uning			T
IV	Chrom Classif Thin L Chrom prepara Perforn Chrom (GC-M	atograph ication - ayer Chr atograph ation of nance atograph atograph IS).	ny - Pap romat ny (H mobi Liqu ny (G	General pri er chromatogr ography (TLC) IPTLC). Conc le phase. Liqu uid Chroma - Mass S C), Gas Chron	nciples of raphy, Column C), High Perform cept of mutual uid Chromatogra atography (H pectrometry ( matography- Ma	chromatograph chromatograph aance Thin Lay miscibility a aphy (LC), Hi PLC), Liqu (LC-MS), G ass Spectromet	ny, ny, rer nd 1 gh das cry	4
						Instruct	ional Hours	12
Sugges	ted Lea	rning M	ethor	ls: Laborator	v practice	motruct		
~~88**	Immu	no-chem	ical 7	<u>Fechniques ar</u>	d electrophore	sis		
V	Genera Antige antiboo spectro Immob Electro Horizo electro	l princi n-antibo lies. E photome pilized phoresis ntal and phoresis.	ples dy r nzym etry n Er . Gen . vert , capi	and introduc eaction, prece e Assay To nethods, ELIS nzymes, F eral Principle, ical electropho llary electroph	tion to antiger ipitin reaction, echniques: Vis A, Automated e luorescence factors affecting oresis, SDS, PA oresis.	and antibod production sible and U enzyme analys Immuno-assa g electrophores AGE, cross ov	ly, of JV is, 1 ay. is, ver	5
						Instruct	ional Hours	12
Sugges	ted Lea	rning M	ethod	ls: Online tra	ining			
						r	<b>Fotal Hours</b>	60
Text B	ooks			1. Notes com and Scienc	piled by the dep e College, Coim	partment of Fo	prensic Scien	ce, Nehru Arts
Refere	nce Boo	ks		<ol> <li>Peterson, C Electropho</li> <li>Willard, H</li> <li>Wilson, K. Techniques</li> <li>Howard, Fe</li> </ol>	Clinical and Fore resis, 2001. .H., Instrumenta and Goulding, I s of Practical Bio orensic Analysis	ensic Application I Methods of A K.H., A Biolog ochemistry, 19 S by Gas Chron	on of Capillar analysis, 1974 jists guide to 91 natography, 2	y 4. Principles and 2012
Web. U	J <b>RLs</b>		1	1. https://epgp vICLa6VY	p.inflibnet.ac.in/ g==	Home/ViewSu	bject?catid=e	CJfy23Kjy3c0
				Tools for	Assessment (50	Marks)		
CL	AI	CIA	II	CIA III	Assignment	Seminar	Quiz	Total
8	3	8		10	8	8	8	50
L		l		1	1	1	l	1

2022

	Mapping													
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	М	L	-	Н	-	М	М	-	-	Н	Н	-	Н	
CO2	Н	М	-	Н	-	Μ	М	-	-	Н	Н	-	Н	
CO3	Н	L	-	Н	-	Μ	М	-	-	Н	Н	-	Н	
CO4	Н	М	-	Н	-	М	М	-	-	Н	Н	-	Н	
CO5	Н	М	-	Н	-	М	Н	-	-	Н	Н	-	Н	
H-High	; M-Me	dium; L-	Low											
	(	Course o	design	ed by					١	Verified	l by			

Course	e Code			Title				
22U4F	RS402		Skill Based Paper II - R	esearch methodolo	gy and Statis	tics		
Semest	er : IV		Credits : 3	CIA: 30 Marks	ESE : 45	Marks		
Course	Objecti	ve	Develop foundational know methods, evaluation of rese relevant research data.	ledge of qualitative earch and applying	and quantitat statistical app	ive research blications to		
Course	Categor	·у	Skill Development					
Develo	pment N	eeds	Global/ International					
Course	Descrip	tion	Research methodology is the problem and Statistics is a organization and analysis of	is the logical, systematic plan to resolve a research is a branch of science that deals with collective is of data from the sample to the whole population of the sample to the whole population.				
Course	Outcom	ies		Teaching Method	ls Assessme	ent Methods		
CO 1	Familia researc	arize v h pro	with basic of research and the cess.	Lecture	Ass	ignment		
CO 2	Choose and hypoth	e the devel esis fo	appropriate research design op appropriate research or a research project	Lecture/Demonstrat	ion Se	eminar		
CO 3	Learn v	variou	is data collection methods	Lecture/Demonstrat	on	Quiz		
CO 4	Descrit method design	be t ls requ	he appropriate statistical uired for a particular research	Lecture/Demonstrat	ion Ass	ignment		
CO 5	Choose be used	e the r l with	ight statistical technique to the research method	Lecture	Case	e studies		
Offered	l by Fo	orensi	c Science					
Course	Content	t		Instru	ctional Hours	s / Week : 3		
Unit			Description		Text Book	Chapters		
Ι	Introdu Researc Epistem Descrip vs. Qua research and ded	tive v notitat notitat n. Res	to Research finitions, Characteristics and and ontology of research s. Analytical, Applied vs. Fur ive, Conceptual vs. Empirica earch methods vs Research M e research, Ethics in Criminal	Objective of researce, Types of researce adamental, Qualitatial, and other kinds lethodology, Inducti Justice Research.	h- h: ve 1 of ve	all		
C		•		Instruc	tional Hours	9		
Sugges	Lear	ning	wiethods: Library extra read	aing				
п	Formula of the s report v Need for hypothe	cn Pro ation o stages writing or res	on of the research problem, Research process, Overview ges in research (hypothesis formation to analysis and ting), Research design: Meaning of research design, research design, Hypothesis: Definition, Types of					
				Instruc	tional Hours	9		
Sugges	ted Lear	ning	Methods. Library extra rea	ding				

III	Data co Types of Interview collectico Samplin design, probabil random samplin nonprob samplin of samp	f Data's, Moo f Data's, Moo ws, intervie on of second g Technique Types of lity sampling sampling, sy g, area sam pability sam g, judgment ling, Require	des of collectio w schedules, dary data. Pop s: Definition, C sampling: Pro g, Types of stematic sampl pling and mu ppling: purpo sampling and s ements of a goo	n of primary dat Questionnaire pulation and un Criteria for select obability samp probability san ling, stratified sa alti-stage samp sive sampling snowball sampli od sample.	ta: Observation es, Modes of nit of analysi eting a samplin ling and non mpling: simp ampling, clusto ling, Types of , convenience ng. Advantage	n, of s, ig n- le er of ce es	6,7,8
	- ··· I	8, 1	6	I I	Instructi	onal Hours	3 9
Sugges	sted Lear	ning Methoo	ls: Group acti	ivity		<u></u>	
IV	Introdu Variable Scales Frequen Class v represen Signific	iction to States; Discrete a of measurent icy for group width, Conti- ntation of c ance of statis	tistics and Continuous nent -Nominal ped and ungro nuous and d lata, bar cha stics in forensic	s, Independent l, ordinal, Inte ouped data, Cla liscontinuous d rt, pie-chart a c science.	and Dependen rval and rations Interval an lata, Graphic and histogram	nt. o. nd 1 al n,	13,14
					Instructi	onal Hours	s 9
Sugges	sted Lear	ning Methoo	ds: Problem so	olving			
V	Measure Measure and star symmet Package	res of Centra es of Centr es of Dispersindard deviati ry: Kurtosis e for Social S	Il Tendency al Tendency: ion: Range, qua on and coeffic and skewnes cience Researc	Mean, Media artile deviation, cient of variationss- Introduction ch (SPSS).	nn and Mode mean deviations. Measure to Statistic	e- on 1 of 1 al	15
					Instructi	onal Hours	s 9
Sugges	sted Lear	ning Methoo	ds: Problem so	olving			
					Т	<b>'otal Hours</b>	s 45
Text B	ooks	1.	Kothari, C. techniques (2	R. (1996). H 2nd ed.). New D	Research met Delhi: Wiley E	hodology: astern.	Methods &
Refere	nce Book	1. 2. 3. 4.	Agarwal, B. Argyrous, G. guide to SPS Gupta, S. P. & Sons. Leabo, D., Homewood	(2012). Basic st (2000). Statist S. London: SA (2008). Statistic & Smith, C. Illinois: R D b	atistics. Tunbi ics for social a GE. cal methods. N (1968). Bas rwin	ridge Wells science rese lew Delhi: ic statistic	: Anshan. earch: With a Sultan Chand s (3rd ed.).
Web. (	URLs	1.	https://epgp.i _research_mo https://epgp.i _research_mo	nflibnet.ac.in/ej ethodology/01 nflibnet.ac.in/ej ethodology/17	pgpdata/uploa _basics_of_res pgpdata/uploa _research_ethi	ds/epgp_co earch/et/81 ds/epgp_co cs/et/5800_	ntent/law/09. 48_et_et.pdf ntent/law/09. et_17_et.pdf
	A T	CIAT			Sometry and	0	T-4-1
CL				Assignment -	Seminar	Quiz	Total
4	4	4	7	5	5	5	30

	Mapping												
CO \ PO	PO1	PO2	PO3	PO4	PO5	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	М	-	-	-	-	Н	-	Н	-	-	-	Н	-
CO2	L	Н	-	-	-	Н	-	Н	-	-	-	Μ	-
CO3	L	Н	-	I	-	Н	-	Н	-	-	-	Н	-
CO4	Μ	Н	-	-	-	Н	-	Н	-	-	-	Μ	-
CO5	Μ	Н	-	I	-	Н	-	Н	-	-	-	Н	-
H-High;	M-Me	dium;	L-Low	7									
		Course	e desig	ned b	y					Verifie	d by		

Cours	e Code		Title					
22U3F	RC509		Core Paper IX	<b>K - Serology and DNA</b>	Typing			
Semes	ter : V		Credits : 4	CIA : 50 Marks	ESE :	50 Marks		
Course	Objecti	ve	To impart knowledge and s	skill for analysing hum	an biologic	al samples.		
Course	Catego	ry	Employability					
Develo	pment N	eeds	Global					
Course	Descrip	tion	Forensic Serology involve	ed the methods of ide	ntifying th	e person under		
			question by means of biolo	ogical analysis. This ir	volves a tw	o-step process.		
			First step is the serological	analysis and the secon	d step is the	DNA analysis.		
Course	Outcom	nes		Teaching Methods	Assess	nent Methods		
CO 1	Collect fluids.	, prese	erve and analyse body	Lecture/Demonstration	on A	ssignment		
CO 2	Extract	DNA	from biological sample.	Lecture/ Case studies	C	ase studies		
CO 3	Compa various	re D s ident	NA using markers for ifications.	Lecture/Demonstration	on	Seminar		
<b>CO 4</b>	Perform	n cher	nical tests for body fluids	Lecture/Video lecture	e	Quiz		
CO 5	Identif	y and i	ndividualise blood samples	Lecture/Demonstration	on A	ssignment		
Offeree	d by F	orens	ic Science					
Course	Conten	t		Instr	uctional H	ours / Week: 5		
<b></b>			Description		Text	Chanters		
Unit			<b>r</b>		Book	Chapters		
Unit	Biologi	cal Ev	idences		Book			
Unit	<b>Biologi</b> Collecti	cal Ev	idences acking and preservation of	f biological evidences	Book			
Unit	<b>Biologie</b> Collecti Preserva	<b>cal Ev</b> on, pa atives	ridences acking and preservation of used in biological evidence	f biological evidences s. Bioterrorism and bi	Book 5. 1	1		
I	Biologie Collecti Preserva war, use	cal Ev on, pa atives e of loo	idences acking and preservation of used in biological evidence cust as a bioweapon, microb	biological evidences s. Bioterrorism and bi ial forensics.	Book 5. 1 0	1		
I	<b>Biologie</b> Collecti Preserva war, use	cal Ev on, pa atives e of lo	idences acking and preservation of used in biological evidence cust as a bioweapon, microb	E biological evidences s. Bioterrorism and bi ial forensics. Instruct	Book Book 1 0 1 0 1 0 0 0 0 0 0 1 0 0 0 0 0 0 0	1 s 15		
Unit I Sugges	Biologie Collecti Preserva war, use ted Lear	cal Ev on, pa atives e of loc	idences acking and preservation of used in biological evidence cust as a bioweapon, microb Methods: Library extra rea	f biological evidences s. Bioterrorism and bi ial forensics. Instruct ading	Book 5. 1 6 1 6 ional Hour	1 s 15		
Unit I Sugges	Biologie Collecti Preserva war, use ted Lear Blood a	cal Ev on, pa atives e of loc ming l und its	ridences acking and preservation of used in biological evidence cust as a bioweapon, microb Methods: Library extra rea function	f biological evidences s. Bioterrorism and bi ial forensics. Instruct ading	Book Book 1 ional Hour	1 5 15		
Unit I Sugges	Biologie Collecti Preserva war, use ted Lear Blood a Human	cal Ev on, pa atives e of loc ming l and its Blood	idences acking and preservation of used in biological evidence cust as a bioweapon, microb Methods: Library extra rea function : composition, functions. Co	f biological evidences s. Bioterrorism and bi ial forensics. Instruct ading	d f	1 5 15		
I	Biologia Collecti Preserva war, use ted Lear Blood a Human preservi	cal Ev on, pa atives e of loo ming l and its Blood ng tec	idences acking and preservation of used in biological evidence cust as a bioweapon, microb Methods: Library extra rea function : composition, functions. Co chniques. Grouping : Generation	E biological evidences s. Bioterrorism and bi ial forensics. Instruct ading ollection, packaging an al Principles, theory o	Book Book 1 ional Hour	1 5 15		
I	Biologie Collecti Preserva war, use ted Lear Blood a Human preservi their inl	cal Ev on, pa atives e of loo ming l and its Blood ng tec heritar	ridences acking and preservation of used in biological evidence cust as a bioweapon, microb Methods: Library extra rea function : composition, functions. Co chniques. Grouping : Gener- nce, Blood group determina formation and Rombay bloo	E biological evidences s. Bioterrorism and bi ial forensics. Instruct ading ollection, packaging an al Principles, theory of ition from fresh blood	Book Book Book I I I I I I I I I I I I I I I I I I	1 s 15		
Unit I Sugges	Biologie Collecti Preserva war, use ted Lear Blood a Human preservi their inl titer, Ra antigen	cal Ev on, pa atives e of loo ming I and its Blood ng tec heritar and	ridences acking and preservation of used in biological evidences cust as a bioweapon, microb Methods: Library extra rea function : composition, functions. Co chniques. Grouping : Genera- nce, Blood group determina formation and Bombay bloo antibody Various antio	E biological evidences s. Bioterrorism and bi ial forensics. Instruct ading ollection, packaging an al Principles, theory of thion from fresh blood od group. Definition of en-antibody reaction	Book Book 1 ional Hour d f l, f 1 1	1 <u>s</u> 15 2		
Unit I Sugges	Biologie Collecti Preserva war, use ted Lear Blood a Human preservi their inl titer, Ra antigen Differer	cal Ev on, pa atives e of loc ming l and its Blood ng tec heritar and ace be	ridences acking and preservation of used in biological evidence cust as a bioweapon, microb Methods: Library extra rea function : composition, functions. Co chniques. Grouping : Gener- nce, Blood group determina formation and Bombay bloc antibody, Various antiget tween precipitation aggluti	E biological evidences s. Bioterrorism and bi ial forensics. Instruct ading ollection, packaging an al Principles, theory of ation from fresh blood od group. Definition of en-antibody reactions	d f f f f f f f f f f f f f f f f f f f	2		
Unit I Sugges	Biologia Collecti Preserva war, use ted Lear Blood a Human preservi their inl titer, Ra antigen Differer Immuno	cal Ev on, pa atives e of loc ming l and its Blood ng tec heritar aulax f and nce be ochem	idences acking and preservation of used in biological evidence cust as a bioweapon, microb Methods: Library extra rea function : composition, functions. Co chniques. Grouping : Genera- nce, Blood group determina formation and Bombay bloc antibody, Various antigo tween precipitation, agglutin ical techniques : principle.	E biological evidences s. Bioterrorism and bi ial forensics. Instruct ading ollection, packaging an al Principles, theory of ation from fresh blood od group. Definition of en-antibody reactions nation and flocculation function and forensi	Book Book 1 1 0 1 0 1 1 1 1 1 5, 1 1 5, 1 1 5, 1 1	1 5 15 2		
Unit I Sugges	Biologia Collecti Preserva war, use ted Lear Blood a Human preservi their inl titer, Ra antigen Differer Immuno significa	cal Ev on, pa atives e of loo ming loo nd its Blood ng tec heritan aulax f and nce be ochem ance.	idences acking and preservation of used in biological evidence cust as a bioweapon, microb Methods: Library extra rea function : composition, functions. Co chniques. Grouping : Gener- nce, Blood group determina formation and Bombay bloo antibody, Various antigu- tween precipitation, agglutin ical techniques : principle,	E biological evidences s. Bioterrorism and bi ial forensics. Instruct ading ollection, packaging an al Principles, theory of ation from fresh blood od group. Definition of en-antibody reactions nation and flocculation function and forensi	Book 3. 1 5. 1 6. 1 6. 1 7. 1	2		
Unit I Sugges	Biologie Collecti Preserva war, use ted Lear Blood a Human preservi their inl titer, Ra antigen Differer Immund significa	cal Ev on, pa atives e of loo ming l and its Blood ng tec heritan aulax f and ce be ochem ance.	ridences acking and preservation of used in biological evidences cust as a bioweapon, microb Methods: Library extra rea function : composition, functions. Co chniques. Grouping : Genera- nce, Blood group determina formation and Bombay bloo antibody, Various antigo tween precipitation, agglutin ical techniques : principle,	E biological evidences s. Bioterrorism and bi ial forensics. Instruct ading ollection, packaging an al Principles, theory of ation from fresh blood od group. Definition of en-antibody reactions nation and flocculation function and forensi	Book Book	2 s 15 s 15		

	Forensic Examination of Body fluids		
ш	Analysis of blood : identification, confirmatory for fresh blood stains. Takayama and Teichmann test for dried blood stains Identification of blood group from stain of blood, Semen, saliva and sweat : absorption elution, absorption inhibition and mixed agglutination. Semen : location, collection, packing, evaluation and tests for identification and forensic significance. Urine : location collection, packaging, preservation, evaluation and tests for identification and forensic significance. Forensic significance of other body fluids like sweat, saliva, milk and its collection and identification.	1	3
	Instructio	nal Hours	15
Sugges	sted Learning Methods: Hands on training		
00	Introduction to Human Genetics		
IV	Human genetics - definition and explanations for Heredity, alleles mutations and population genetics. Molecular biology of DNA variations in DNA, Biochemical aspects. Genomics and medical genetics. Mitochondrial DNA - definition, structure, biochemical activity. DNA Profiling : Introduction, definite ion, history and importance in the field of forensic science. Paternity and maternity index : equation, derivation and calculation.	1	4
	Instructio	nal Hours	15
Sugges	sted Learning Methods: Video lectures		
	DNA Profiling		
V	DNA typing systems - Polymorphism, RFLP analysis, PCR amplifications, sequence polymorphism. Analysis and functioning of SNP and Y- STR, Evaluation of results, frequency estimate calculations, allele frequency determination, Interpretations of results. Match probability - database, quality control, certification and accreditation. Forensic Significance of DNA profiling Applications in disputed paternity cases, child swapping. Missing person's identity, civil immigration, job disputes. Case studies related to paternity and maternity disputes and child swapping Legal standards for admissibility of DNA profiling.	1	5
	Instructio	nal Hours	15
Sugges	sted Learning Methods: Online training		
	To	tal Hours	75
Text B	ooks         1. Forensic Serology notes compiled by the description           Science, Nehru Arts and Science College, Colleg	partment of of other of the other of the other of the other	f Forensic

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Refere	ence Bo	ooks	1 2 3 4 5	<ol> <li>DNA Structure and functions by Richard R. Sinden; Academic Press, Inc. 1994.</li> <li>DNA Profiling and DNA fingerprinting; Edited by Jorg T. Epplen and Thomas Lubjuhn; Birkhauser Verlag, Switzerland, 1999.</li> <li>Modi, J.K. (1988): Medical Jurisprudence and Toxicology, N.M. Tripathi Pvt. Ltd.</li> <li>Fraser, Roberts J.A (1965): An introduction to Medical Genetics.</li> <li>Chatterjee, C. C- (1975): Human Physiology.</li> </ol>									nic pplen J.M. etics.
Web.	URLs		1 2 3	. http FS/2. http FS/2. http FS/2. http FS/2.	nttps://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000016 FS/P000699/M011528/ET/1516257136FSC_P12_M2_e-text.pdf https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000016 FS/P000699/M011539/ET/1516257484FSC_P12_M13_e-text.pdf https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000016 FS/P000699/M011530/ET/1516257192FSC_P12_M4_e-text.pdf								
Tools for Assessment (50 Marks)													
CIA I CIA II CIA III Assignment Seminar Quiz Total								Ouiz	atal				
CIAICIAIICIAIIIAssignmentSemmarQuizTotal991099950								Jiai					
8	5 5	8			10		<u>8</u>		8	ui	8		50
8	5	8			10	M	8 apping		8		8		50
8 CO\ PO	PO1	8 PO2	PO3	PO4	10 PO5	M PO6	8 apping PO7	PO8	8 PSO1	PSO2	8 PSO3	PSO4	50 PSO5
CO\ PO CO1	PO1 M	<b>РО2</b> Н	<b>РОЗ</b> Н	<b>РО4</b> Н	<b>10</b> РО5 М	M PO6 -	8 apping PO7 L	PO8 -	8 PSO1 -	PSO2 H	8 PSO3 H	PSO4	50 50 PSO5 M
CO\ PO CO1 CO2	PO1 M M	<b>РО2</b> Н Н	<b>РОЗ</b> Н М	<b>РО4</b> Н Н	<b>10</b> РО5 М L	M PO6 -	8 apping PO7 L M	PO8 - -	8 PSO1 - -	<b>РSO2</b> Н Н	8 PSO3 H H	PSO4	50 50 PSO5 M L
CO\ PO CO1 CO2 CO3	<b>PO1</b> M M M	<b>РО2</b> Н Н Н	PO3 H M L	<b>РО4</b> Н Н	10 PO5 M L M	- - -	8 apping PO7 L M L	PO8	8 PSO1	<b>РSO2</b> Н Н	PSO3           H           H           H	PSO4 - M	50 50 M L M
CO\ PO CO1 CO2 CO3 CO4	PO1 M M M M	<b>РО2</b> Н Н Н Н	PO3 H M L M	<b>РО4</b> Н Н Н	10 PO5 M L M L	PO6 - - -	8 apping PO7 L M L M	PO8 - - - -	8 PSO1	<b>РSO2</b> Н Н Н	8 PSO3 H H H H	PSO4 - - M -	50 PSO5 M L M L
CO\ PO CO1 CO2 CO3 CO4 CO5 H_Hig	PO1 M M M M M h: M-W	8 PO2 H H H H H H	PO3 H M L M H	<b>PO4</b> H H H H	10 PO5 M L M L M	PO6 - - - - -	8 apping PO7 L M L L M M M	PO8 - - - - -	8 PSO1	<b>РSO2</b> Н Н Н Н Н	8           PSO3           H           H           H           H           H           H           H           H           H	PSO4 - - M - -	PSO5           M           L           M           L           L           L           L           L           L
CO\ PO CO1 CO2 CO3 CO4 CO5 H-Hig	PO1 M M M M h; M-N	8 PO2 H H H H H H Iedium; l	PO3 H M L H H L-Low	<b>PO4</b> H H H H	10 PO5 M L M L M	PO6 - - - - -	8 apping PO7 L M L M M M	PO8 - - - - -	8 PSO1	<b>РSO2</b> Н Н Н Н Н	8           PSO3           H           H           H           H           H           H           H           H	PSO4 - - M -	PSO5           M           L           M           L           L           L
CO\ PO CO1 CO2 CO3 CO4 CO5 H-Hig	PO1 M M M M M h; M-N	PO2 H H H H H Iedium; I	PO3 H M L H L-Low	<b>PO4</b> H H H H H y	10 PO5 M L M L M y	PO6	8 apping PO7 L M L M M M	PO8	8 PSO1	PSO2 H H H H H Verifi	PSO3           H	PSO4 - - M -	PSO5           M           L           M           L           L
CO\ PO CO1 CO2 CO3 CO4 CO5 H-Hig	PO1 M M M M h; M-N	PO2     H     H     H     H     H     H     Ourse	PO3 H M L H L-Low	<b>PO4</b> H H H H y	10 PO5 M L M L M y	PO6	8 apping PO7 L M L M M	PO8	8 PSO1	PSO2 H H H H H Verifi	PSO3           H	PSO4 - - M -	PSO5           M           L           M           L           M           L

Cour	ourse Code Title								
22U3	FRC510		Core Pape	r X - Forensic Toxicolog	у				
Seme	ester : V		Credits : 4	CIA: 50 Marks	ESE :	50 Marks			
Cours	e Objectiv	ve .	Develop knowledge and s samples	kill for the analysis of for	ensic toxi	cological			
Cours	e Categor	y	Employability						
Devel	opment Ne	eeds	Global						
Cours	e Descript	ion	Toxicology is the study Toxicology deals with the analysis of body samples	of the action of poisons e identification of cause for various poisons.	in the bo of death	ody. Forensic based on the			
Cours	e Outcom	es		Assessm	nent Methods				
CO 1	Know th inside bo	e biolo ody.	gical action of various toxin	Lecture/Demonstration	A	ssignment			
CO 2	Extract a	and iso	late toxins.	Lecture/ Case studies	Ca	ase studies			
CO 3	Provide	first ai	s. Lecture/Demonstration		Seminar				
CO 4	Collect, evidence	pack es.	l Lecture/Video lecture		Quiz				
<b>CO5</b> Study the metabolism and extraction of common poisons in the body Lecture/Demonstration						Assignment			
Offere	ed by F	orensi	ic Science						
Cours	e Content			Instruction	onal Hou	rs / Week : 5			
Unit Description									
Unit		Book	Chapters						
Unit	Introduct	tion to	Forensic Toxicology		Book	Chapters			
Unit	<b>Introduc</b> Forensic	<b>tion to</b> toxice	Forensic Toxicology blogy: Introduction, Rol	e of the toxicologist,	Book	Chapters			
Unit	<b>Introduct</b> Forensic significan	tion to toxico ce of	<b>Forensic Toxicology</b> blogy: Introduction, Rol f toxicological findings	e of the toxicologist, - Poisons, definition,	Book	Chapters			
Unit	Introduct Forensic significan classificat	tion to toxico ce or tion on	<b>Forensic Toxicology</b> blogy: Introduction, Rol f toxicological findings the basis of their origin,	e of the toxicologist, - Poisons, definition, physiological action and	Book	Chapters 11			
Unit	Introduct Forensic significan classificat chemical	tion to toxico ce of tion on nature,	<b>Forensic Toxicology</b> blogy: Introduction, Rol f toxicological findings the basis of their origin, types of poisoning- Modes	e of the toxicologist, - Poisons, definition, physiological action and of administration- Signs	Book	Chapters 11			
Unit	Introduct Forensic significan classificat chemical and symp	tion to toxice ce of tion on nature, otoms of	<b>Forensic Toxicology</b> blogy: Introduction, Rol f toxicological findings the basis of their origin, types of poisoning- Modes of poisoning, its effect on	e of the toxicologist, - Poisons, definition, physiological action and of administration- Signs vital functions- Medico	Book	Chapters 11			
Unit	Introduct Forensic significan classificat chemical and symp legal and	tion to toxice ce of tion on nature, ptoms of post-m	<b>Forensic Toxicology</b> blogy: Introduction, Rol f toxicological findings the basis of their origin, types of poisoning- Moder of poisoning, its effect on ortem findings and report	e of the toxicologist, - Poisons, definition, physiological action and of administration- Signs vital functions- Medico vriting.	Book	Chapters 11			
Unit	Introduct Forensic significan classificat chemical and symp legal and	tion to toxice ce of tion on nature, otoms of post-m	<b>Forensic Toxicology</b> blogy: Introduction, Rol f toxicological findings the basis of their origin, types of poisoning- Modes of poisoning, its effect on fortem findings and report	e of the toxicologist, - Poisons, definition, physiological action and of administration- Signs vital functions- Medico vriting. Instructiona ding	Book 1 1 Hours	Chapters 11 15			
Unit I Sugge	Introduct Forensic significan classificat chemical and symp legal and sted Learn Drugs an	tion to toxico ce of tion on nature, potoms o post-m ning M d its a	<b>Forensic Toxicology</b> blogy: Introduction, Rol f toxicological findings the basis of their origin, types of poisoning- Modes of poisoning, its effect on fortem findings and report v lethods: Library extra reactions	e of the toxicologist, - Poisons, definition, physiological action and of administration- Signs vital functions- Medico vriting. Instructiona ding	Book 1 1 Hours	Chapters 11 15			
Unit I Sugge	Introduct Forensic significan classificat chemical and symp legal and sted Learn Drugs an Drugs: de	tion to toxico ce of tion on nature, otoms o post-m <b>ning M</b> d its a	<b>Forensic Toxicology</b> blogy: Introduction, Rol f toxicological findings the basis of their origin, types of poisoning- Modes of poisoning, its effect on ortem findings and report v lethods: Library extra rea ctions	e of the toxicologist, - Poisons, definition, physiological action and of administration- Signs vital functions- Medico vriting. Instructiona ding	Book 1 1 Hours	Chapters           11           15			
Unit I Sugge	Introduct Forensic significan classificat chemical and symp legal and sted Learn Drugs an Drugs: de Common	tion to toxico ce of tion on nature, otoms o post-m <b>ning M</b> d its a finition	Description         Forensic Toxicology         ology:       Introduction, Rol         a the basis of their origin,       types of poisoning- Modes         of poisoning, its effect on       ortem findings and report of         cortem findings and report of       ortem findings and report of         lethods:       Library extra reactions         n, classification and scope       umed drugs, their mode of	e of the toxicologist, - Poisons, definition, physiological action and of administration- Signs vital functions- Medico vriting. Instructiona ding and forensic importance- actions, symptoms, street	Book 1 1 Hours	Chapters 11 15			
Unit I Sugge	Introduct Forensic significan classificat chemical and symp legal and sted Learn Drugs an Drugs: de Commoni names, m	tion to toxice ce of tion on nature, otoms of post-m hing M d its a efinition ly cons ethods	Description         Forensic Toxicology         blogy:       Introduction, Rol         a the basis of their origin,       types of poisoning- Modes         bf poisoning, its effect on       of poisoning, its effect on         cortem findings and report with       of the second	e of the toxicologist, - Poisons, definition, physiological action and of administration- Signs vital functions- Medico vriting. Instructiona ding and forensic importance- actions, symptoms, street of drugs: chemical and	Book 1 1 Hours	Chapters           11           15           21			
Unit I Sugge	Introduct Forensic significan classificat chemical and symp legal and sted Learn Drugs: de Commonl names, m instrumen	tion to toxice ce of ion on nature, otoms of post-m hing M d its a finition ly cons acthods ntal. Sp	Description         Forensic Toxicology         ology:       Introduction, Rol         f       toxicological findings         a the basis of their origin,       types of poisoning- Modes         of poisoning, its effect on       ortem findings and report of         cortem findings and report of       of         lethods:       Library extra reactions         n, classification and scope       umed drugs, their mode of         of consumption-       Analysis         pot tests and qualitative       of	e of the toxicologist, - Poisons, definition, physiological action and of administration- Signs vital functions- Medico vriting. Instructiona ding and forensic importance- actions, symptoms, street of drugs: chemical and analysis- Importance of	Book           1           1           1           1           1	Chapters           11           15           21			
Unit I Sugge	Introduct Forensic significan classificat chemical and symp legal and sted Learn Drugs: de Commonl names, m instrumen physical a	tion to toxico ce of tion on nature, otoms of post-m hing M d its a of inition ly cons tal. Sp and bio	Description         Forensic Toxicology         blogy:       Introduction, Rol         f       toxicological findings         a the basis of their origin,       types of poisoning- Modes         bot poisoning, its effect on       tortem findings and report of         cortem findings and report of       tortem findings and report of         lethods:       Library extra reactions         n, classification and scope       umed drugs, their mode of         of consumption- Analysis       tests and qualitative         chemical instrumentation in       tests	e of the toxicologist, - Poisons, definition, physiological action and of administration- Signs vital functions- Medico vriting. Instructiona ding and forensic importance- actions, symptoms, street of drugs: chemical and analysis- Importance of the field of dug analysis.	Book 1 1 I Hours	Chapters           11           15           21			
Unit I Sugge	Introduct Forensic significan classificat chemical and symp legal and sted Learn Drugs an Drugs: de Commonl names, m instrumen physical a	tion to toxico ce of tion on nature, otoms of post-me ning M d its a finition ly cons tal. Sp and bio	Description         Forensic Toxicology         ology:       Introduction, Rol         f       toxicological findings         a the basis of their origin,       types of poisoning- Modes         of poisoning, its effect on       ortem findings and report of         a thebasis       Library extra reading         b thebasis       Library extra reading         a thebasis       Library extra reading         b thebasis       Library extra reading         c thebasis       Library extra reading         b thebasis       Library extra reading	e of the toxicologist, - Poisons, definition, physiological action and of administration- Signs vital functions- Medico vriting. Instructiona ding and forensic importance- actions, symptoms, street of drugs: chemical and analysis- Importance of the field of dug analysis. Instructiona	Book Book	Chapters           11           15           21           15			

	Extract	ion, Collect	ion and Ana	alysis of Toxins							
III	Extracti modern separati the qua poisons	on, isolation techniques on of poison ntification of , snake veno	n and clean s. Applicati n and drugs. of poisons at m, insect bit	up procedures: ion of chromat Spectrophotome nd drugs- Exami es.	conventional and ography for the tric techniques for nation of metallic	1	14				
					Instructiona	l Hours	15				
Sugge	Suggested Learning Methods: Laboratory practice										
IV	Introdu Forensid distribu metabol pharmad	tion- Absorption, metabolism, drug n and clinical	1	17							
	I				Instructiona	l Hours	15				
Sugge	ested Lea	rning Meth	ods: Video l	lectures							
	Collect	ion of Evide	nces and Re	eport Writing							
V	Manage sympton Collecti Choice toxicolo	ement of To ms of common and press of preservat ogical cases.	oxicological non poisons ervation of v ives, contain	cases in the ho , antidotes and s viscera for various ners and storage-	spital: Signs and Stomach washing- s types of poisons: Report writing in	1	25				
					Instructional	l Hours	15				
Sugge	ested Lea	rning Meth	ods: Hands	on training							
					Tota	l Hours	75				
Text l	Books		<ol> <li>Naraya Toxico</li> </ol>	na Reddy K.S, I logy, 13 <sup>th</sup> edition	ntroduction to Fore	ensic Med	licine and				
1. Modi's: Medical Jurisprudence & Toxicology         Press Ltd. Allahabd, 1988.         2. S.N. Tiwari: Analytical Toxicology, G         Publications, New Delhi, 1987.         3. Saferstein, R: Forensic Science Hand Book, Y         Pretince Hall, NI, 1982. Saferstein, R: Crimina         4. O Hara &Osterburg : Introduction to Criminal							<ol> <li>Trirathi</li> <li>of India</li> <li>II and III,</li> <li>2002.</li> <li>949</li> </ol>				
Web. URLs       1. https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=eCJfy23         Kjy3c0vICLa6VYg==											
	Tools for Assessment (50 Marks)										
C	IA I	CIA II	CIA III	Assignment	Seminar	Quiz	Total				
	8	8	10	8	8	8	50				

						Mapp	oing						
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	М	М	Н	Н	L	М	-	-	-	Н	Н	-	-
CO2	М	Н	Н	Н	L	L	М	-	-	Н	Н	-	L
CO3	Н	М	М	L	L	L	-	L	-	Н	Н	-	М
CO4	М	Н	Н	Н	L	-	М	-	-	Н	Н	-	-
CO5	М	Н	Н	Н	L	М	-	-	-	Н	Н	-	-
H-High	; M-Me	edium; 1	L-Low	7									
	(	Course	desig	ned by					Ve	rified b	y		

Course	Code				Title			
22U3FI	RT511		Core Pap	er XI	- Outdoor Traini	ing		
Semest	ter : V		Credits : 4	CIA	A : 50 Marks	F	ESE : 50 Marks	
Course	Objecti	ve	To make the students competent for physical tests					
Course	Categor	·у	Skill Development					
Develop	oment N	eeds	National					
Course	Descrip	tion	Police jobs in India demands specific fitness benchmarks. This course id designed to train the learner to develop physical strength in this regard.					
Course	Outcom	ies			Teaching Metho	ds	Assessment Methods	
CO 1	Do ph healthy	ysical ′.	exercises which keep t	them	Outdoor Activit	ies	Physical test	
CO 2	Do bas	ic dril	l movements		Outdoor Activit	ies	Physical test	
CO 3	Play va strengt	arious h.	games which require phy-	sical	Outdoor Activity	ies	Physical test	
<b>CO 4</b> Follow commands properly and coordinate with team mates.					Outdoor Activit	ies	Physical test	
CO 5	<b>CO 5</b> Showcase lifesaving skills and self defense tactics.				Outdoor Activit	ies	Physical test	
Offered	by Fo	orensi	c Science					

## List of activities student must indulge in

## **Instructional Hours / Week : 5**

- 1. Drill- Parade, march past, turnings, salute
- 2. Physical Training
- Running
- Stretching Exercises
- Cardio Training
- Endurance Training
- Muscle Building Exercises (Push-ups, Sit-ups, Chin-ups, etc.)
- 3. Yoga
- 4. Self Defense Training
- 5. Swimming
- 6. Games

## **Internal evaluation**

The students need to perform the Parade individually and, in the contingent, to make sure the effective assessment of Drill movements and synchronization within the contingent.

## **External Evaluation**

Students' progress in learning drill movements and march past will be assessed both individually and as part of contingent.

Apart from the Parade students' performance will also be measured in terms of physical activity tests such as Running700 meters, push-ups, sit-ups and Chin-ups.

A person with substantial experience in outdoor training and Parade will be invited as the External Examiner. Both internal and external examiner will assess the performance of the student in the evaluation.

Tools for Assessment CIA (50 Marks)								
Activity - I	Activity - II	Activity - III	Activity - IV	Total				
10 10 10 20 50								

ESE (50 Marks)								
Activity - I	Activity - II	Activity - III						
20	15	15						

Mapping												
PO1	PO2	PO3	PO4	PO5	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5
Н	Н	Н	L	М	М	L	Μ	М	Н	Н	М	М
М	М	М	М	Н	М	М	М	Н	Н	Н	М	Н
Н	L	М	Н	М	М	L	Н	М	Н	Н	М	М
М	Н	L	М	L	L	Н	Μ	Н	М	Н	Н	М
М	М	Н	Н	М	Н	М	Н	Н	Н	М	Н	Н
M-Mee	dium;	L-Low	,									
(	Course	e desig	ned b	y					Verifie	d by		
	PO1 H M M M M M	PO1     PO2       H     H       M     M       H     L       M     H       M     M       A-Medium;     T	PO1PO2PO3HHHMMHLMHLMMHMHMHMHMHMHMHMHMHMHMHMHMHMH	PO1         PO2         PO3         PO4           H         H         H         L           M         M         M         M           H         L         M         H           H         L         M         H           M         H         L         M           M         H         L         M           M         H         L         M           M         H         L         M           M         H         L         M           M         H         L         M           M         H         L         M           M         H         L         M           M         H         L         M           M         H         L         M           M         H         L         M           M         H         L         M           M         H         L         M           M         H         L         M	PO1         PO2         PO3         PO4         PO5           H         H         H         L         M           M         M         M         H         H           H         L         M         H         M           H         L         M         H         M           M         H         L         M         L           M         H         L         M         M           M         H         L         M         M           M         H         L         M         M           M         H         H         M         M           M-Hedium; L-Low         E         E         E	PO1         PO2         PO3         PO4         PO5         PO6           H         H         H         L         M         M           M         M         M         M         H         M           H         L         M         M         M         M           H         L         M         H         M         M           H         L         M         H         M         M           M         H         L         M         H         L         L           M         M         H         H         M         H         H         M           M-H         H         H         M         H	PO1         PO2         PO3         PO4         PO5         PO6         PO7           H         H         H         L         M         M         L           M         M         M         M         H         M         M           H         L         M         M         H         M         M           M         M         M         H         M         M         L           M         H         L         M         H         M         M           M         H         L         M         H         M         M           M         H         L         M         H         M         M           M         H         H         M         H         M         M           M-Medium; L-Low         E         Image: Course designed by         Image: Course designed by	PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8           H         H         H         L         M         M         L         M           M         M         M         M         H         M         M         M           M         M         M         H         M         M         M         M           H         L         M         H         M         M         M         M           H         L         M         H         M         M         H         H           M         H         L         M         L         L         H         M           M         H         H         M         H         M         H           M         M         H         H         M         H         M           M-Medium; L-Low         Image: Course designed by         Image: Course designed by	PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PS01           H         H         H         L         M         M         L         M         M           M         M         M         H         M         M         L         M         M           M         M         M         H         M         M         H         M           H         L         M         H         M         M         H         M           H         L         M         H         M         M         H         M           M         H         L         M         H         H         M         H           M         H         H         M         H         M         H         H           M         M         H         H         M         H         H         H           M-Medium; L-Low         E         Image: Course designed by         Image: Cours	PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PS01         PS02           H         H         H         L         M         M         L         M         M         H           M         M         M         H         M         M         H         H           M         M         M         H         M         M         H         H           H         L         M         H         M         M         H         H           M         M         H         M         M         L         H         M         H           M         H         L         M         H         M         H         M           M         H         H         M         H         M         H         H         M           M         M         H         M         H	PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PS01         PS02         PS03           H         H         H         L         M         M         L         M         M         H         H           M         M         M         H         M         M         H         H           M         M         M         H         M         M         H         H           M         M         M         H         M         M         H         H           H         L         M         H         M         M         H         H         H           H         L         M         H         M         H         H         H           M         H         L         L         L         H         M         H         M           M         M         H         M         H         M         H         M         M           M         M         H         M         H         M         M         M         M           M         H         H         M         M         M </td <td>PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PS01         PS02         PS03         PS04           H         H         H         L         M         M         L         M         M         H         M         M           M</td>	PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PS01         PS02         PS03         PS04           H         H         H         L         M         M         L         M         M         H         M         M           M

Course	Code	e	Title									
22U3FI	RP512	2	Core Pape	er XII - Serol	logy and Tox	icology Practica	ıl					
Semest	er : V	7	Credits : 4	CL	A: 50 Marks	s ESE : 5	0 Marks					
Course	Obje	ctive	Forensic serolog the bodily fluid perspiration and presence of drug	gy goes along ls inside of fecal matter gs and/or pois	g with toxico the body su and toxicologous in biolog	logy. Serology i uch as blood, s gical examination fical tissues and f	s the study of emen, saliva, 1 looks for the luids.					
Course	Categ	gory	Employability									
Develop	ment	Needs	Global									
Course	Descr	ription	Course is structure as it applies to h	ured to providair, drug and	de the basic c body fluid ar	concepts of analy nd other toxicolog	tical methods gic evidences.					
Course	Outco	omes			Teaching M	ethods Assessi	nent Methods					
CO 1	CO1 Learn to analyze and compare and identify different types of hair.					ion / Jons	Practical					
CO 2	Cono grou	duct test to p and diat	o identify blood st oms.	ains, blood	Demonstrat	ion	Practical					
CO 3	Lear	n the disti	llation of alcoholi	ic drinks.	Demonstrat Video Lesso	ion / ons	Practical					
CO 4	Lear and j	n the syste packing of	ematic methods of four four four four four four four f	f collection mples.	Demonstrat Video Lesso	ion / Jons	Practical					
CO 5	To p drug	repare a T s and pest	LC plate and examination LC plate and examination the second seco	mination of	Demonstrat Video Lesso	ion / Jons	Practical					
Offered	by	Forensic	Science	1								
Course	Conte	ent			In	structional Hou	rs / Week : 5					
S. No	•			Exp	eriment							
1		Analysis a	and comparison o	f human and	animal hair.							
2		Blood gro	ouping of fresh blo	ood stains.								
3		Presumpti	ive test for blood	stains.								
4		Microcrys	stal tests for dried	blood stains.								
5		Microscoj	pic analysis of dia	atom								
6		Collection	n and packing of t	oxicological	samples.							
7		Extraction	n of drugs and poi	isons from di	fferent matric	ces.						
8		Distillatio	n of alcoholic dri	nks.								
9		Preparatio	on of TLC plates.									
10		TLC exan	nination of drugs	and pesticide	2S							
			Toola for	Accoremont	(50Marka)	TOTA	AL 75 Hours					
Analyti	cal	Lab		T								
Skill	]	Performa	nce	Test I	Test II	Observation	Total					
8		8	8	10	10	6	50					

						I	Mapping	Ţ,					
CO \ PO	PO1	PO2	PO3	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Н	Н	Н	Н	М	-	М	L	-	Н	Н	L	-
CO2	Н	Н	Н	Η	М	-	М	L	-	Н	Н	L	-
CO3	Н	Н	Н	Н	М	-	М	L	-	Н	Н	L	-
<b>CO4</b>	Н	Н	Н	Η	М	-	М	L	-	Н	Н	L	-
CO5	Н	Н	Н	Η	М	-	М	L	-	Н	Н	L	-
H-Hig	gh; M-1	Mediur	n; L-Lo	WC									
		Cours	se desig	gned b	ŊУ				V	erified	by		

Cou	rse Code	Title				
22U3	FRE501	Discipline Specific Electiv	ve Paper : I (A) - Introd Finance	uction to 1	Forensic	
Seme	ester : V	Credits : 4	CIA: 50 Marks	ESE : 50	Marks	
Course	Objective	Learn to identify analyse taken place	and provide evidence th	at financia	al fraud has	
Course	Category	Employability				
Develo	pment Need	s Global				
Course	Description	Financial forensics is a fie with financial auditing skil from within or outside of a	eld that combines crimin ls to identify criminal fin n organization.	al investig ancial activ	ation skills vity coming	
Course	Outcomes		<b>Teaching Methods</b>	Ass	essment ethods	
CO 1	Acquire ki Forensic F	nowledge about the concept of inance	Lecture/Demonstration	Ass	ignment	
CO 2	To learn Technique	various Financial Analysis s	Lecture/Demonstration	Se	eminar	
CO 3	Acquire s Fraud	kills to detect and prevent	Lecture/ tutorial	(	Quiz	
CO 4	Know al techniques	bout various investigative and tools	Lecture/Video lecture	Ass	ignment	
CO 5	Learn the legal fram	Professional Conduct and ework	Lecture/ Case studies	Cas	se study	
Offered	l by Forer	sic Science				
Course	Content		Instructio	onal Hours	s / Week : 6	
Unit		Description		Text Book	Chapters	
I	Introduction Definition of Finance, Ro Business M Customer T Chain, Hur	on and operation analysis of Forensic Finance, History an ole of Forensic Finance in Invest Model and Strategy, Industry Base and Revenue Streams, Con nan Resources and Managemen	d Evolution of Forensic stigations and Litigation and Market Analysis, Operations and Supply nt	1	1	
C		- Madha day Damana indana	Instruction	al Hours	18	
Suggest	Financial	g Methods: Powerpoint pres	sentation			
п	Financial Analysis, 1 performance	Analysis, Cash Flow aluation Methods, key	1	2		
			Instruction	al Hours	18	
Suggest	ted Learnin	g Methods: Library extra rea	ading	1		
III	Fraud Det Types of F Detection	ection and Prevention inancial Fraud, Red Flags and Fechniques, Fraud Prevention S	Warning Signs, Fraud Strategies	1	3	
			Instructional Hours 18			
Suggest	ted Learnin	g Methods: Online training				

	Investi	gative	Tech	niques	and T	Fools							
IV	Interviewing Techniques, Document Analysis, Digital For Data Mining and Analysis, Case Management Software										1		4
- '	Data M	lining	and A	ngues, nalvsis		Manao	vement	Softw	are	15105	1		•
	Dutu IV	ming		141 9 515	, cuse	101unu	Sement	50111	Instr	uctiona	l Hour	s	18
Suggest	ed Lea	rning	Metho	ds: Vi	deo le	ctures						- 1	
- 88	Profes	sional	Cond	uct an	d lega	l fram	ework						
	Code o	f Con	duct ar	nd Prot	fession	al Star	ndards	Confi	dentiali	ty and			
<b>T</b> 7	Data	Protec	tion.	Confl	ict o	f Inte	erest	and I	ndepen	dence.			<i>_</i> _
V	Communication and Transparency. Laws and Regulation									ations	1		5
	Governing Financial Crimes in India. Investigation and Litigation												
	Process in India, Expert Witness Testimony and Reports in India												
Instructional Hor											l Hour	s :	18
Suggest	ed Lea	rning	Metho	ds: Ca	ase stu	dies							
										Tota	l Hour	s s	90
			1	. Not	es Con	npiled	by the	depart	ment of	Forens	ic Scier	nce, Nel	nru
Text Bo	OKS			Arts	and S	cience	Colleg	ge Coir	nbatore			,	
			1	. Fore	ensic A	Accoun	ting an	d Frau	d Exam	ination	by Will	iam S.	
				Hop	wood,	Jay J.	Leiner	, and C	George I	R. Youn	g		
			2	. Fina	ncial l	Investi	gation	and Fo	rensic A	Accounti	ing, Thi	rd Editi	ion by
				Geo	rge A.	Mann	ing and	l Richa	urd A. S	impson			
D	D		3	. Fore	ensic A	nalyti	cs: Met	thods a	nd Tecl	nniques	for Fore	ensic	
Keleren	се воо	KS		Acc	ountin	g Inve	stigatio	ons by I	Mark N	igrini			
			4	. Frat	ıd Exa	minati	on, Fift	h Edit	ion by V	V. Steve	Albrec	ht, Cha	d O.
				Alb	recht, (	Conan	C. Alb	recht, a	and Ma	rk F. Zir	nbelma	n	
			5	. Prin	ciples	of Fra	ud Exa	minatio	on, Fou	rth Editi	on by J	oseph T	•
				Wel	ls								
				Too	ols for	Asses	sment	(50 Ma	arks)				
CIA	I	CL	A II	C	IA III	A	ssignn	nent	Semin	ar (	Quiz	То	tal
8			8		10		8		8		8	5	0
						Ma	pping				-		
CO \ PO	<b>PO1</b>	PO2	PO3	PO4	PO5	<b>PO6</b>	<b>PO7</b>	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Н	М	L	L	Н	-	-	-	-	Н	Н	L	-
CO2	H	Η	М	Η	L	-	М	-	-	Н	Н	М	-
CO3	H	H	M	H	L	-	М	-	-	H	H	M	-
	H	H	H	H		-	-	-	-	H	H	M	-
LU5		M		L	M	-	-	-	-	IVI	Н	M	-
	101-10100	uiuiii;	L-LOW										
		Course	e desig	ned by	y					Verifie	d by		

Course	e Code		Title							
22U3F	RE502	Dis	cipline Specific Elective I	Paper : I (B) - Introduc Science	tion to Cybe	r Forensic				
Semest	er : V		Credits : 4	CIA : 50 Marks	ESE : 50	Marks				
Course	Objectiv	ve	Introduce the students to related to it.	cybercrimes, their type	s, investigatio	on and laws				
Course	Categor	у	Knowledge							
Develo	pment N	eeds	Global							
Course	Descrip	tion	Cyber forensic Science is is designed to introduce t specialize in the cyber for	an advanced area in fore he concepts to any fore rensic field.	ensic science. nsic student v	This course who wish to				
Course	Outcom	ies		<b>Teaching Methods</b>	Assessme	ent Methods				
CO 1	Recogn comput	nise ters a	terminologies related to nd cyber security.	Lecture/Demonstratio	n Ass	ignment				
CO 2	Have cyberci	an rimes.	overall view of various	Lecture/ Case studies	Cas	e studies				
CO 3	Develo techniq investig	p a ba jues i gatior	asic idea about the tools and in the field of cybercrime n.	Lecture/Demonstratio	n Se	eminar				
CO 4	Legal f	frame gatior	work in which cybercrime	Lecture/Video lecture		Quiz				
CO 5	Know cyberci	the ro rime i	ble and functions of various nvestigation tools.	Lecture/Demonstratio	n Ass	ignment				
Offered	l by Fo	rensi	c Science							
Course	Content	t		Instruc	tional Hours	s / Week : 6				
Unit			Description		Book	Chapters				
	Introdu	iction	and Topology							
	Historic	al c	levelopment, Classificati	on of cybercrime	_					
	Conven	tional	crime vs. cybercrime,	causes for cybercrim	2,					
	Viruses	wor	yderennie wondwide. It ns malwares bombs emai	l bombing data diddling	р, т					
	salami a	ttack	s, phishing, steganography,	cyber stalking, spoofing	, ,					
Ι	pornogr	aphy,	defamation, computer var	dalism, cyber terrorism	, 1	1				
	cyber w	varfar	e, crime in social media, s	ocial engineering, cred	it					
	card frauds and financial frauds, telecom frauds, Cloud based									
	crime, Understanding fraudulent behaviour, fraud triangle, fraud									
	detectio	n tec	hniques, Intellectual Prope	erty Rights, Violation of	of					
	Intellectual Property Rights, E-commerce frauds.									
				Instruct	ional Hours	18				
Sugges	ted Lear	ning	Methods: PowerPoint pre	sentation						

	Cyber Crimes		
	Introduction to Computer Crime, Characteristics of Computer		
	Crime, Classification of computer crimes. Introduction to cyber		
	crimes and their classification, Hacking and Cyber Laundering,		
	Spamming, Obscenity and Pornography, Programme		
II	Manipulation. Cyber stalking and web jacking. Phishing and	1	2
	Spoofing, DOS and DDOS Attacks, Intellectual, Property Crimes		
	& Computer Security Introduction to Cyber forensic Malware		
	and their types. Types of viruses and worms. Super zapping and		
	tran doors Identity Theft Frauds Cyber Criminals & Their		
	Targets Modus operandi of cyber criminal		
	Targets, Modus operandi of Cyber criminal.	al Hours	10
Suggoo	ted Learning Methodes Librory extra reading	ai nours	10
Sugges	Evidence Collection		
	Evidence Conection		
	Cardinal rules of cyber forensic, Imaging of Hard disk and other		
ш	media, Password Cracking, E-Mail Investigation, Encryption and	1	3
	decryption methods, Restoration of Deleted File, Tools for Cyber		5
	Forensic Analysis, Digital crime scene investigation, Cyber		
	Forensic Workstation, Legal Perspective of Digital Evidences.		
	Instruction	al Hours	18
Sugges	ted Learning Methods: Video lectures		
	Cyber crime investigation		
	Cyber/digital forensics, Cyber forensics life cycle, Chain of		
	custody, Search, seizure and preservation of digital evidence,		
IV	Cyber forensic tools, Cloud forensics, Data privacy issues,	1	4
	Cryptography, Cyber forensic divisions in State and Central		
	Governments, Cybercrime cells, Cyber appellate authorities.		
	Instruction	al Hours	18
Sugges	ted Learning Methods: Library extra reading		
	Cyber laws in India		
	Information Technology (amended) Act. 2008 – Indian Evidence		
	Act $1872 - \text{Digital evidence} - Cyber laws across the globe -$		
	UNCITRAL - Jurisdiction issues Unit V: Cybercrime and		
V	Counter manufactures Information sequrity Rest information sequrity	1	5
	Counter-measures miorimation security – Best miorimation security		
	practices in mula and other countries – E-man security – web		
	application security, marware security, network security, cloud		
	Security and whereas security.	al Hours	10
Sugges	Instruction		10
Sugges	teu Learning Methous, rowerromt presentation		00
	Tot	al Hours	90

NASC 2022

Text Bo	oks		1.	Note Arts	es Con and S	npiled cience	by the Colleg	Depar e, Coi	tment of mbatore	f Fore:	nsic Sciei	nce, Ne	hru
Reference Books1. Colarik, A. & Janczewski, L. (2011). Cyber Warfare and Cyb Terrorism. Springer. 2. Fadia, A. (2005). The Unofficial Guide to Ethical Hacking. Course Technology. 3. Erickson, J. (2008). Hacking: The Art of Exploitation, 2nd Edition. No Starch Press.									ber				
Web. Ul	Web. URLs       1. https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/Forensi         c_Science/16Digital_forensics/10Introduction_to_cyber_crime         s_and_their_classification/et/6311_et_6311_et_et.pdf         2. https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/forensi         c_science/16digital_forensics/26cardinal_rules_of_cyber_fore         nsic/et/6316_et_6316_et_et.pdf										orensi _crime orensi _fore		
	т	CI	A TT		$\frac{1}{1}$	Asses	sment	(50 M	arks)		Ouia	Т	4.01
	1	U.	A II 8	C.	LA III 10	A	ssignm 8	ent	Semin 8	ar	Quiz 8	10	50
			0		10	Ma	pping		U		Ū		•
CO\PO	<b>PO1</b>	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO	2 PSO3	PSO4	PSO5
CO1	L	Н	L	L	L	Н	Н	-	М	М	L	L	L
CO2	L	Н	Н	Η	Н	Н	Н	-	Н	Н	L	L	L
CO3	H	H	H	H	Н	H	M	-	H	H	L	L	L
CO4	H	M	L	H	M	M	H	-	H	M		L	L
H-High;	H M-Me	dium;	L L-Low	M	M	M	M	-	M	M	L	L	L
	Course designed by Verified by												

22U3FRE503       Discipline Specific Elective Paper : I (C) - Forensic Psych         Semester : V       Credits : 4       CIA : 50 Marks       ESE : 50         To enhance understanding of behavior, in terms of its biologic	Marks							
Semester : VCredits : 4CIA : 50 MarksESE : 50To enhance understanding of behavior, in terms of its biologic	Marks							
To enhance understanding of behavior, in terms of its biologic	al, cognitive,							
<b>Course Objective</b> social, emotional and contextual components and their intera develop an appreciation for its implications in forensic setting	To enhance understanding of behavior, in terms of its biological, cognitive, social, emotional and contextual components and their interaction, and to develop an appreciation for its implications in forensic settings.							
Course Category Knowledge	Knowledge							
Development Needs Global	Global							
Course DescriptionForensic Psychology is the application of psychology in the aid of I investigation. Forensic psychology looks into the vast psycholog perspectives and applies them to legal investigations including issues as public policies, new laws, competency, and also the mental state defendant.								
Course Outcomes Teaching Methods Assessm	ent Methods							
CO1To understand the basic concepts of psychology suitable for forensic science professionalsLecture/DemonstrationAs	signment							
CO 2Understand the concepts of Normality and AbnormalityLecture/DemonstrationCar	se studies							
CO 3Gain knowledge about various psychological disordersLecture/Video lectureS	eminar							
CO4 Able to discriminate Sociopathy and Psychopathy Sociopathy Able to discriminate Sociopathy and Society Able to discriminate Society Able to	Quiz							
CO 5To learn about Criminal profiling and various Criminal profiling methods.Lecture/DemonstrationAs	signment							
Offered by Forensic Science								
Course Content Instructional Hour	rs / Week : 6							
UnitDescriptionTextBook	Chapters							
Forensic PsychologyDefinition and sub-specializations of forensic psychology, History of Forensic Psychology, Ethical Issues in forensic psychology, Relationship between psychology and law and Relationship of forensic psychology with criminology and criminal psychology Scope and future of forensic psychology, Mac Naughten rule, Insanity in Indian penal code (IPC 84): Legal insanity and medical insanity.1								
Instructional Hours	18							

	Normality and Abnormality		
	The concept of normality and abnormality. Historical view of		
	abnormal behaviour. Abnormal behaviour: Current status and		
	classification systems- ICD and DSM- Merits and demerits of		
	classification. Causes and risk factors biological viewpoints		
п	Psycho-social viewpoints: Major perspectives Socio-cultural	1	2
11	viewpoint. Alashal shuge and dependence. Clinical nicture and	1	Z
	Viewpoint, Alcohol abuse and dependence, Chincal picture and		
	Causal factors, Drug abuse and dependence, Opium and its		
	derivatives, Barbiturates, Amphetamines, Cocaine,		
	Hallucinogens, Marijuana, Caffeine and nicotine, Factors		
	affecting drug abuse.		
	Instruction	al Hours	18
Sugges	sted Learning Methods: Library extra reading		
	Psychological Disorder		
	Mood disorders: Mania and depression, Unipolar and bipolar		
	disorders, Causal factors in mood disorders: Biological,		
	Psychological, and Socio-cultural factors, Anxiety disorders,		
	Phobic disorders, Panic disorder and agoraphobia, Generalised		
	Anxiety Disorder and Obsessive Compulsive Disorder, Personality		
	disorders: Clinical features of personality disorders, Types of		
	Personality disorders, Paranoid, Schizoid, Schizo-typal, Histrionic,		
III	Narcissistic, Antisocial, Borderline, Avoidant, Dependent,	1	3
	Obsessive-compulsive, Passive-aggressive and Depressive		
	personality disorder. Causal factors in personality disorders:		
	Biological, Psychological and Socio-cultural, Schizophrenia and		
	delusional disorder. The clinical picture in schizophrenia. Subtypes		
	of schizophrenia-Paranoid Catatonic Disorganised Residual and		
	undifferentiated type Causal factors in Schizonhrenia Biological		
	Psychological and Socio-cultural factors. The clinical picture in		
	delusional disorder. Causal factors in delusional disorder		
	defusional disorder, Causal factors in defusional disorder.		10
Sugge	IIISU UCUOI	lai nours	10
Bugger	Psychopathy and Sociopathy		
	Evewitness testimony: its importance and significance. Violence		
	and aggression: biological factors psychological factors and social		
	factors Childhood disorders and criminality. The Criminal		
137	Psychoneth general behavioural characteristics of psychoneths	1	4
11	difference between psychoneth and socieneth Articocial		4
	Bersonality Disorder and Brychonath and Offending netterns of		
	Personanty Disorder and Psychopath and Offending patterns of		
	criminal psychopaths, Criminal Homicide, Multiple Murder, Serial		
	Killers, Mass Murders.	<u> </u>	10
C	Instruction	al Hours	18
Sugges	sted Learning Methods: Video lectures		

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	Crimi	nal Pro	ofiling											
	Inducti	ve an	d Dee	ductive	e appi	roache	s and	crimi	inal pro	ofiling				
	method	ls. Poly	ygraph	: instru	iment a	and its	parame	eters, s	scientific	c basis				
v	and te	chniqu	es: rel	evant-	irrelev	ant te	chnique	es, C(	QT, Car	d test	1		5	
	Brain	mapp	ing, E	SEOS:	intro	ductio	n to	BEOS	s instru	iment,				
	Proced	ure, s	uspect	inter	view,	desig	ning (	of pro	bes-auc	10 X				
	amp; amp; visual, recording and its analysis, Narco Analysis: History and Procedure and its forensic importance.													
	Instructional Hours 18													
Suggest	ed Lea	rning	Metho	ds: Vi	ideo le	ctures			111501	uction	<u>ii 110u1</u>	3	10	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~										Tota	al Hour	s	90	
Torrt Do	alva		1.	Not	es com	piled b	by the d	leparti	nent of	forensic	science	, Nehru	ı Arts	
Text Bo	OKS			and	Scienc	e Coll	ege Co	imbate	ore.			,		
			1.	Allo	oy, L.I	B., Ris	kind, J	.H., M	lanos, N	1.J. – A	bnormal	Psych	ology-	
			2	Cur	rent Pe	erspect	ives,9 t	h Edit	ion(200	5), Tata	Mc gra	w –Hill		
				Eor	101, C.	K &	amp;a	np; в	artol, A	<b>A.IVI.</b> (2	2008).In	lroduct	ion to	
Referen	ce Boo	ks	3	Res	earch a	and An	ogy. plicatio	on.US	A: SAG	E publi	cations.			
			4	Car	son, F	R.C., 1	Butcher	; J.N	. &am	;amp;	Mineka	eka, S. (2000).		
				Abn	ormal	Psych	ology a	ind	1	· · ·		,	,	
			5.	Mo	lern Li	ife. (11	th Ed).	New	York: A	lleyn &	amp;ar	np; Bac	con.	
Web. U	RLs		1.	http	s://epg	p.infli	bnet.ac	.in/Ho	me/Viev	wSubje	ct?catid=	eCJfy2	23Kjy	
				3c0	vICLa	5VYg=	=							
				To	ols for	Asses	sment	(50 M	arks)					
CIA	I	CL	AII	C	IA III	As	ssignm	ent	Semin	ar	Quiz	To	tal	
8			8		10		8		8		8	5	0	
						Ma	pping							
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	H	H	L	H	M	-	M	-	-	M	H	Н	-	
CO2 CO3	н	H	L	<u>п</u> Н	M	-	M	-	-	M	н	 Н	-	
CO4	Н	M	L	M	M	_	M	-	-	M	Н	Н	-	
CO5	Н	Н	L	Н	Н	-	-	-	М	Н	Н	Н	-	
H-High;	M-Me	dium;	L-Low											
	0	Course	design	ned by	7					Verifie	d by			
				v							•			

Course	e Code	Title							
22U4F	'RS503	c Science							
Semes	ter : V		Credits : 3	CIA: 30 Marks	ESE : 45	Marks			
Course	Objectiv	ve	This course is designed legal framework in which	to provide awareness to th h Forensic Science operat	e students re es.	egarding the			
Course	Categor	·у	Skill Development						
Develo	pment N	eeds	Global						
Course	Descrip	tion	Being the application of on the law of the land. various laws.	science for law, Forensic S Hence this course provid	Science depe es a deep in	ends heavily sight about			
Course	Outcom	es		<b>Teaching Methods</b>	Assessmen	nt Methods			
CO 1	Unders	tand t	he Indian Legal System	Lecture/Demonstration	Assig	gnment			
CO 2	Learn legal sy	the c	oncept of evidence in	Lectures/ Tutorials	Ser	ninar			
CO 3	Unders the crir	tand ninal	the role of witnesses in justice system.	Tutorial / Case Studies	Q	Quiz			
CO 4	To gain legal co	n an u ommu	understanding about the nications.	Tutorial / Case Studies	Act	tivity			
CO 5	Acquir	e ption	basic idea about s and burden of proof.	Lecture	Assig	gnment			
Offered	by Fo	rensi	c Science		•				
Course	Content			Instruct	ional Hours	Wook · A			
course				Instruct	ional fiours	5/ WCCK . 4			
Unit			Description	Instruct	Text Book	Chapters			
Unit	Indian I Introduc laws, co maxims criminal Penal C structure complai	Legal ction t ourts a . Basi defer code ( e of nt.	<b>Description</b> <b>System</b> o the Indian legal system and their jurisdictions, leg c concepts of criminal la nees. Indian Penal Code : 7 (IPC), the offenses and IPC, and the procedur	: Sources of law, types of gal procedures, and legal w, criminal liability, and The structure of the Indian their definitions, general e for filing a criminal	Text Book	Chapters			
Unit	Indian I Introduc laws, co maxims criminal Penal C structure complai	Legal ction t ourts a . Basi defer code ( e of nt.	<b>Description</b> System o the Indian legal system and their jurisdictions, leg c concepts of criminal lances. Indian Penal Code : 1 (IPC), the offenses and IPC, and the procedur	Sources of law, types of gal procedures, and legal w, criminal liability, and The structure of the Indian their definitions, general e for filing a criminal Instructio	Text Book 1	all 12			
Unit	Indian I Introduc laws, co maxims criminal Penal C structure complai	Legal ction t ourts a . Basi defer code ( e of nt.	<b>Description</b> System o the Indian legal system and their jurisdictions, leg c concepts of criminal la nees. Indian Penal Code : 7 (IPC), the offenses and IPC, and the procedur	: Sources of law, types of gal procedures, and legal w, criminal liability, and The structure of the Indian their definitions, general e for filing a criminal <u>Instruction</u> reading	Text Book	Chapters       all       12			
Unit I Sugges	Indian I Introduc laws, co maxims criminal Penal C structure complai <b>ted Lear</b> <b>Evidence</b> lintroduc relevance between Evidence circums and oral and adm evidence	Legal ction t ourts a . Basi defer code ( e of nt. ning 1 ce in 1 ce and a adm e : Di tantia l evid issibi e, and e.	Description System o the Indian legal system and their jurisdictions, leg c concepts of criminal la nces. Indian Penal Code : 7 (IPC), the offenses and IPC, and the procedur Methods: Library extra Legal System to Evidence Law: Basic importance in the legal sy nissible and inadmissib fferent types of evidence, for the legal sy nissible and inadmissib fferent types of evidence, for the legal sy nissible and inadmissib fferent types of evidence, for the legal sy nissible and inadmissib fferent types of evidence, for the legal sy nissible and inadmissib fferent types of evidence, for the legal sy nissible and inadmissib fferent types of evidence, for the legal sy nissible and inadmissib fferent types of evidence and the criteria for deterring the criteria for deterring the criteria for the terring for the terring the criteria for terring the criteria for the criteri	: Sources of law, types of gal procedures, and legal w, criminal liability, and The structure of the Indian their definitions, general e for filing a criminal Instruction reading concepts of evidence, its ystem, and the distinction le evidence. Types of including direct evidence, e, documentary evidence, ence : Rules of relevancy en relevant and irrelevant nining the relevance of	Text       Book       1	Chapters       all       12       7,8			
Unit I Sugges	Indian I Introduc laws, co maxims criminal Penal C structure complai <b>ted Lear</b> <b>Evidence</b> lintroduc relevance between Evidence circums and oral and adm evidence	Legal ction t ourts a . Basi defer code ( e of nt. ning ) ce in 1 ction t ce and a adm e : Di tantia l evid nissibi e, and e.	Description System o the Indian legal system and their jurisdictions, leg c concepts of criminal lances. Indian Penal Code : 7 (IPC), the offenses and IPC, and the procedur Methods: Library extra Legal System to Evidence Law: Basic importance in the legal system to Evidence, real evidence, for a levidence, real evidence, for a levidence, real evidence ence. Relevancy of Evide lity, the distinction betwe d the criteria for deterr	: Sources of law, types of gal procedures, and legal w, criminal liability, and The structure of the Indian their definitions, general e for filing a criminal Instruction reading concepts of evidence, its ystem, and the distinction le evidence. Types of including direct evidence, ence : Rules of relevancy en relevant and irrelevant nining the relevance of Instruction	Text Book	Chapters           all           12           7,8           12			

III	WitnessesThe types of witnesses, including eyewitnesses, expert witnesses, and hostile witnesses, and the examination of witnesses in court. Examination of Witnesses : Different modes of examination of witnesses, including examination-in-chief, cross-examination, and re-examination, and the rules and techniques for conducting effective examination of witnesses. Hearsay Evidence and legal significance.1allInstructional Hours1								
Sugges	ted Lea	rning Metho	ds: Case Studi	es					
IV	Legal CommunicationsOpinion Evidence : The admissibility of opinion evidence, including expert opinion evidence, and the rules governing the admissibility of such evidence. Confessions and Admissions : The admissibility of confessions and admissions in criminal trials, the distinction between voluntary and involuntary confessions, and the rules governing the admissibility of such evidence. Privileged Communications : The concept of privileged communications, including lawyer-client privilege, doctor-patient privilege, and spousal privilege, and the rules governing the admissibility of such evidence.11,12								
G					Instructi	onal Hours	12		
V	Burden Presum and evi presum Burden crimina fraud.	n of proof an aptions : Diffe idential presu aptions in trial of Proof in al cases, civil	d Presumption erent types of p mptions, and th ls. Special Case cases, and case	ns presumptions, in ne rules govern s : The burden s involving bre	ncluding legal ing the use of n of proof in ach of trust or	1	15		
Sugges	ted Lea	rning Metho	ds. Video lecti	Iro	Instruction	onal Hours	12		
bugges	icu Lea			#1 V	Т	'otal Hours	60		
Text B	ooks	1.	Ratanlal, R., Lucknow, Ind	& Dhirajlal, K. dia: Eastern Bo	(2016). The L ok Company.	aw of Evide	ence.		
Refere	<ol> <li>Lal, B. (2020). Law of evidence. Central Law Agency.</li> <li>Rai, A. K. (2016). Evidence law: Principles, practice, and problems. Eastern Book Company.</li> <li>Universal. (2020). Indian Evidence Act: Bare Act with short notes. Universal Law Publishing.</li> <li>Gupta, S. P. (2016). Textbook on the law of evidence. Universal Law Publishing.</li> </ol>								
			Tools for As	ssessment (30 N	Marks)				
CL	AI	CIA II	CIA III	Assignment	Seminar	Quiz	Total		
4	4	4	7	5	5	5	30		

	Mapping												
CO \ PO	PO1	PO2	PO3	PO4	PO5	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Μ	-	-	L	Н	-	Н	-	Н	М	L	Н	-
CO2	Μ	L	L	Н	Н	-	L	-	Н	М	L	Н	-
CO3	Н	М	Н	Н	Н	-	L	-	Н	Н	Н	Н	-
CO4	Μ	L	L	Μ	Н	-	Н	-	Н	Н	L	Н	-
CO5	Μ	-	Н	Μ	Н	-	L	-	Н	М	-	Н	-
H-High;	M-Me	dium;	L-Low	7									
		Course	e <mark>des</mark> ig	ned by	y					Verifie	d by		

Course	e Code		Title						
22U3F	RC613		Core Paper XIII - Qu	estioned Document l	Examination	1			
Semest	er : VI		Credits : 4	CIA : 50 Marks	ESE : 50	Marks			
Course	Objectiv	VΟ	To impart knowledge and sk	o impart knowledge and skill of handling questioned documents and					
Course	Objecti	vc	investigating crimes associa	ted with documents.					
Course	Categor	·у	Employability						
Develo	pment N	eeds	Global						
C	D		Documents are simply recor	ded information. This	course is de	signed to			
Course	Descrip	tion	in analysis of docume	itts för all so	ons of				
Course	Outcom	Tooching Mothods	Assassme	nt Mathada					
Course	Have		Teaching Methous	Assessing					
CO 1	examin	ation	n Ass	ignment					
CO 2	Differe	ntiate	two handwriting.	Lecture/ Case studies	Cas	e studies			
CO 3	Identify	y the a	author of a handwriting.	Lecture/Demonstration	n Se	eminar			
CO 4	forgery	ntiate '.	e natural variation from	Lecture/Video lecture		Quiz			
CO 5	Examin	ne se	curity documents such as	Lecture/Demonstration	n Ass	ignment			
Offered	currence by Fo	ronsi	e, passport etc.			-			
Course	Contont			Instruct	ional Hours	s / Week • 6			
Course	Conten	-		monuce	ional moul				
					Text				
Unit			Description		Text Book	Chapters			
Unit	Introdu	iction	Description to questioned documents		Text Book	Chapters			
Unit	Introdu Introduc	<b>iction</b>	<b>Description</b> <b>to questioned documents</b> to questioned documents, I	listory of questioned	Text Book	Chapters			
Unit	Introduc Introduc docume	<b>iction</b> etion nts, C	<b>Description</b> <b>to questioned documents</b> to questioned documents, H Classification of questioned documents	History of questioned ocuments and various	Text Book	Chapters			
Unit	Introduc Introduc docume classes question	<b>iction</b> etion nts, C of q	<b>Description</b> <b>to questioned documents</b> to questioned documents, H Classification of questioned d uestioned documents, Scop pocuments, Preservation and h	History of questioned ocuments and various e and application of andling of questioned	Text Book	Chapters			
Unit	Introduc Introduc docume classes question docume	<b>iction</b> etion nts, C of q ned do nts : 1	<b>Description</b> to questioned documents to questioned documents, I Classification of questioned d uestioned documents, Scop ocuments, Preservation and h Do's and Don'ts, Tools and t	History of questioned ocuments and various e and application of andling of questioned echniques used for the	Text     Book	<b>Chapters</b> all			
Unit	Introduc Introduc docume classes question docume examina	ection nts, C of q ned do nts : I ation	<b>Description</b> to questioned documents to questioned documents, I Classification of questioned d uestioned documents, Scop ocuments, Preservation and h Do's and Don'ts, Tools and to of questioned documents, I	History of questioned ocuments and various e and application of andling of questioned echniques used for the Ethics for Questioned	Text     Book	<b>Chapters</b> all			
Unit	Introduce docume classes question docume examina Docume	tion nts, C of q ned do nts : 1 ation ent ex	Description to questioned documents to questioned documents, H Classification of questioned d uestioned documents, Scop ocuments, Preservation and h Do's and Don'ts, Tools and to of questioned documents, H perts. Various document exam	History of questioned ocuments and various e and application of andling of questioned echniques used for the Ethics for Questioned nination associations.	Text Book	Chapters			
Unit	Introduc Introduc docume classes question docume examina Docume	otion nts, C of q ned do nts : 1 ation ent ex	<b>Description</b> to questioned documents to questioned documents, H Classification of questioned d uestioned documents, Scop ocuments, Preservation and h Do's and Don'ts, Tools and to of questioned documents, H perts. Various document exam	History of questioned ocuments and various e and application of andling of questioned echniques used for the Ethics for Questioned nination associations. Instruction	Text Book	Chapters all 18			
Unit I Suggest	Introduce Introduce docume classes question docume examina Docume	nction nts, C of q ned do nts : 1 ntion ent ex ning	Description to questioned documents to questioned documents, I Classification of questioned d uestioned documents, Scop ocuments, Preservation and h Do's and Don'ts, Tools and to of questioned documents, I perts. Various document exam	History of questioned ocuments and various e and application of andling of questioned echniques used for the Ethics for Questioned nination associations. Instruction	Text         Book         1         onal Hours	Chapters all 18			
Unit I Sugges	Introduce docume classes question docume examina Docume ted Lear Handw	nction nts, C of q ned do nts : 1 ntion ent ex ning riting	Description to questioned documents to questioned documents, H Classification of questioned d uestioned documents, Scop ocuments, Preservation and h Do's and Don'ts, Tools and to of questioned documents, H perts. Various document exam Methods: Video lectures and Signature examination	History of questioned ocuments and various e and application of andling of questioned echniques used for the Ethics for Questioned nination associations. Instruction	Text Book	Chapters all 18			
Unit I Suggest	Introduce docume classes question docume examina Docume ted Lear Handw Introduce	nction nts, C of q ned do nts : 1 ation ent ex ning riting	Description to questioned documents to questioned documents, H Classification of questioned d uestioned documents, Scop ocuments, Preservation and h Do's and Don'ts, Tools and to of questioned documents, H perts. Various document exam Methods: Video lectures and Signature examination to handwriting and signature	History of questioned ocuments and various e and application of andling of questioned echniques used for the Ethics for Questioned nination associations. Instruction re examination, Class stics of handwriting	Text Book	Chapters all 18			
Unit I Suggest	Introduce docume classes question docume examina Docume ted Lear Handw Introduce characte Forgery	nction nts, C of q ned do nts : 1 ntion ent ex <b>ning</b> ction eristic and	Description to questioned documents to questioned documents, H Classification of questioned d uestioned documents, Scop ocuments, Preservation and h Do's and Don'ts, Tools and to of questioned documents, H perts. Various document exam Methods: Video lectures and Signature examination to handwriting and signature s and individual characteri	History of questioned ocuments and various e and application of andling of questioned echniques used for the Ethics for Questioned nination associations. Instruction re examination, Class stics of handwriting sic examination and	Text Book	Chapters all 18			
Unit I Suggest	Introduce docume classes question docume examina Docume ted Lear Handw Introduce characte Forgery identific	nts, C of q ned do nts : 1 ntion ent ex ning riting etion eristic and eation	Description to questioned documents to questioned documents, H Classification of questioned d uestioned documents, Scop ocuments, Preservation and h Do's and Don'ts, Tools and to of questioned documents, H perts. Various document exam Methods: Video lectures and Signature examination to handwriting and signature s and individual characteri types of forgeries, Foren of forgeries, Examination of	History of questioned ocuments and various e and application of andling of questioned echniques used for the Ethics for Questioned nination associations. Instruction re examination, Class stics of handwriting sic examination and f additions, alteration	Text Book	Chapters all 18			
Unit I Suggest	Introduce docume classes question docume examina Docume ted Lear Handw Introduce character Forgery identifice and obli	ntion nts, C of q ned do nts : 1 ation ent ex ning 1 riting ction eristic and cation teratio	Description to questioned documents to questioned documents, H Classification of questioned d uestioned documents, Scop ocuments, Preservation and h Do's and Don'ts, Tools and to of questioned documents, H perts. Various document exam Methods: Video lectures and Signature examination to handwriting and signatures and individual characteri types of forgeries, Forem of forgeries, Examination of on in the documents, Examina	History of questioned ocuments and various e and application of andling of questioned echniques used for the Ethics for Questioned nination associations. Instruction re examination, Class stics of handwriting sic examination and f additions, alterations tion of mechanical and	Text Book	Chapters           all           18           10			
Unit I Suggest	Introduce docume classes question docume examina Docume ted Lear Handw Introduce characte Forgery identifice and oblic chemica	rition ention nts, C of q ned do nts : 1 ation ent ex <b>ning</b> riting etion eristic and cation teration l eras	Description to questioned documents to questioned documents, H Classification of questioned d uestioned documents, Scop ocuments, Preservation and h Do's and Don'ts, Tools and to of questioned documents, H perts. Various document exam Methods: Video lectures and Signature examination to handwriting and signatures and individual characteri types of forgeries, Foren of forgeries, Examination of on in the documents, Examination sures on the documents.	History of questioned ocuments and various e and application of andling of questioned echniques used for the Ethics for Questioned nination associations. Instruction re examination, Class stics of handwriting sic examination and f additions, alterations tion of mechanical and	Text Book	Chapters all 18			
Unit I Suggest	Introduce docume classes question docume examina Docume ted Lear Handw Introduce characte Forgery identifice and obli chemica	nts, C of q ned do nts : 1 ntion ent ex <b>ning</b> riting ction eristic and cation teration d eras	Description to questioned documents to questioned documents, H Classification of questioned d uestioned documents, Scop bocuments, Preservation and h Do's and Don'ts, Tools and to of questioned documents, H perts. Various document exam Methods: Video lectures and Signature examination to handwriting and signature s and individual characteri types of forgeries, Foren of forgeries, Examination of on in the documents, Examina- sures on the documents.	History of questioned ocuments and various e and application of andling of questioned echniques used for the Ethics for Questioned nination associations. <b>Instruction</b> stics of handwriting sic examination and f additions, alterations tion of mechanical and <b>Instruction</b>	Text Book	Chapters           all           18           10           18			

	Examination	of documents		
ш	Examination stamps, stam documents, d fake documer	of security documents (Currencies, passports, postal p papers, etc.). Examination of credit cards, e- igital signatures. Examination of manipulated and ats.	1	12
		Instruction	al Hours	18
Sugges	ted Learning	Methods: Laboratory practice	ai iioui s	10
IV	Age of docum Examination Destructive examination printers in for documents an mechanical i overwriting, a	nent of Ink and Paper, Determination of age of documents, method and non-destructive methods used in of ink and paper, Importance of typewriters and ensic document examination, Examination of charred d secret writings, Examination of rubber stamps and mpressions, Examination of alterations, erasures, additions, and obliteration.	1	11
		Instruction	al Hours	18
Sugges	ted Learning	Methods: Hands on training		
V	<b>Typewriters</b> Physical mate staple / punc History of T machine, typ printers: dot printed conte Facsimile m Typewriters, p examination.	and Printers ching of documents: analysis of sequence of folds, h marks, etc. Determination of age of documents. ypewriters, types of typewriters, identification of escripts and typist. History of printers, types of matrix, inkjet, laser, Thermal etc. Examination of ents and identification of the printing machine. achines - working, examination. Importance of printers and facsimile machines in Forensic document	1	15
	•	Instruction	al Hours	18
Sugges	ted Learning	Methods: Library extra reading		
		Tot	al Hours	90
Text B	ooks nce Books	<ol> <li>Ramachandran, Questioned Documents, Law</li> <li>Ordway Hilton, Elsevier; Scientific Examin Documents, Rev. ED: New York, (1928).</li> <li>Albert S. Osborn, Second ; Questioned Docu Law, Publishing, Delhi, (1928).</li> <li>Albert S. Osborn; The problem of Proof, S Law, Publishing, Delhi (1998).</li> <li>Charles C. Thomas, Billy Prior Bates; Type I.S.Q.D., Springfield, Illinois (1971).</li> </ol>	rmann's 20 nation of uments, Ec Second Ed ewriting Id	Questioned I. Universal . Universal entification
Web. (	JRLs	<ol> <li>https://epgp.inflibnet.ac.in/epgpdata/uploads/ 16FS/P000695/M006281/ET/1516191959FS</li> <li>https://epgp.inflibnet.ac.in/epgpdata/uploads/ 16FS/P000695/M011511/ET/1516250867FS text.pdf</li> </ol>	/epgp_cont C_P8_M1 /epgp_cont C_P8_M3	ent/S0000 _e-text.pdf ent/S0000 2_e-

Tools for Assessment (50 Marks)														
CIA I		CIA II		CIA III		A	Assignment		Seminar		Quiz		Total	
8		8		10			8		8		8		50	
Mapping														
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	PO	B PSO1	PSC	)2	PSO3	PSO4	PSO5
CO1	М	Н	М	М	Н	L	М	-	-	Н		Н	-	Н
CO2	М	Н	М	Н	М	L	Н	-	-	Н		Н	-	Н
CO3	Н	Н	М	Н	М	L	Н	-	-	Н		Н	-	М
CO4	М	Н	М	Н	М	L	Н	-	-	Н		Н	-	М
CO5	Н	Н	Μ	Н	М	L	Н	L	-	Н		Н	-	Н
H-High; M-Medium; L-Low														
Course designed by								Verified by						

Course Code		e	Title										
22U3FRP614		1	Core Paper XIV- Questioned Document Examination Practical										
Semester : VI			Credits : 4 CIA				A : 50 Marks		ESE : 50 Marks				
Course Objective			Learn to provide evidence about suspicious or questioned documents										
Course Category			Employability										
Develor	Needs	Glo	Global										
Course Description				In forensic science, questioned document may be examined to determine its origin, authenticity, and many other facets in order to solve a potential crime.									
Course	Outco	omes	nes					ethods	ods Assessment Methods				
CO 1	Unde altere	erstand the	e varia ents	tion in handv	Demonstrat Video Lesso	ion / ons	I	Practical					
CO 2	To ex	xamine se	curity	urity documents			Demonstrat	ion	l	Practical			
CO 3	Deci	phering Se	cret writings			Video Lesso	10n / 0ns	I	Practical				
CO 4	Anal	ysis of ink				Demonstrat Video Lesso	ion / ons	1	Practical				
CO 5 Learn to write r				report in forgery case			Demonstrat Video Lesso	ion / ons	Practical				
Offered by Forensic Science													
Course Content			Instructional Hours / Week : 6										
S. No. Exp					eriment								
1		Examinat	Examination of handwriting and comparison.										
2		Examinat	Examination and comparison of signature.										
3		Security	Security documents examination: currency note and passport examination.										
4		Decipher	Deciphering the secret writing and miniature writing.										
5		Paper chr	Paper chromatography for ink analysis.										
6		Analysis of sequence of stroke in altered documents (addition ).											
7		Identification of author from disguised writing.											
8		Moot court and case laws											
9		Report writing- in a simulated case of handwriting or signature forgery											
10Preservation of charred documents													
TOTAL 90 Hours													
Tools for Assessment (50 Marks)													
Analytical Skill		Lab Perform	ance	Inference	Test	Ι	Test II	Obse	rvation	Total			
8		8		8	10		10		6	50			
	Mapping												
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CO\ PO	<b>PO1</b>	PO2	PO3	<b>PO4</b>	PO5	PO6	<b>PO7</b>	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Н	Н	Н	Н	-	-	L	-	-	Н	Н	-	М
CO2	Н	Н	М	Н	-	-	М	-	-	Н	Н	-	М
CO3	Н	Н	М	Н	-	-	М	-	-	Н	Н	-	М
CO4	Н	Н	М	Η	-	-	М	-	-	Н	Н	-	М
CO5	Н	Н	М	Η	-	-	М	-	-	Н	Н	-	М
H-Hig	H-High; M-Medium; L-Low												
		Cours	se desig	gned b	ŊУ			Verified by					

Cou	rse Code			Title				
<b>22U</b>	3FRT604	Discipline Specific Ele	Discipline Specific Elective Paper : II (A) – Internship ; Analytical Science					
Sem	ester : VI	Credits : 4	CIA	: 50 Marks	E	SE : 50 Marks		
Course	Objective	The objective of this course is to provide undergraduate students with hands-on experience in the working of various organisations in the field of criminal justice administration.						
Course	Category	Skill Development						
Develop	oment Needs	Employability						
<b>Course Description</b> This course provides undergraduate students with various agencies involved in the criminal jutime experience. This will develop skills in crisskills, and effective communication.					vith an o justice critical t	opportunity to work system and get real hinking, laboratory		
Course	Outcomes			Teaching Me	ethods	Assessment Methods		
CO 1	To understa organisations administration	and the functions of va s involved in criminal j on.	arious justice	Hands-on tr	aining	Review		
CO 2	Analyse the the different science.	ies of rensic	Hands-on tr	aining	Review			
CO 3	Understand t various field	he scope of Forensic Scients.	nce in	Hands-on tr	aining	Review		
CO 4	Know the scientist to w	skillset require for a for ork in the industry.	rensic	Hands-on tr	aining	Review		
CO 5	Create know	ledge and give it to the soci	iety.	Hands-on tr	aining	Review		
Offered	by Forensi	c Science						

#### List of activities student must indulge in

### **Instructional Hours / Week : 6**

The students must undergo a 15-day internship in various labs/police station/ advocate office/court/ prison/ related industries to expose to the various agencies and their functioning

- (i) Student must complete all 15 days of internship work and produce certificate issued by the respective agency for proof.
- (ii) A report comprise of the daily activities done by the student should be submitted within the stipulated time.
- (iii) During the end semester examination, the evaluation will be done by a panel of examiners, including internal examiners.
- (iv) A public viva voce, where the I, & II Year students will be the audience

# **B. Sc. Forensic Science**

NASC | 2022

	Tools for Assessment CIA (50 Marks)							
Review - I	Review - II	Review - III	Document Preparation & Implementation	Total				
10	10	10	20	50				

ESE (50 Marks)								
Report	Presentation	Viva voce						
20	15	15						

				pping									
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Н	М	М	L	Н	М	М	М	Н	Н	Н	Н	М
CO2	Н	Н	М	М	Н	М	М	М	Н	Н	Н	М	Н
CO3	Н	Н	М	Н	Н	М	М	М	М	Н	Н	М	М
CO4	Н	Н	Н	М	Н	L	Η	Н	Н	М	Н	Н	М
CO5	Н	Н	М	Н	М	Н	М	М	Н	Н	М	Н	Н
H-High; M-Medium; L-Low													
		Cours	e desig	gned b	y			Verified by					

Cou	rse Code		Title					
22U	3FRT605	Discipline Specific Elective Paper : II (B) – Internship ; Legal Services						
Sem	ester : VI	Credits : 4	CIA : 50 Marks	ES	SE : 50 Marks			
Course	Objective	The objective of this course is to provide undergraduate students with hands-on experience in the working of various organisations in the field of criminal justice administration.						
Course	Category	Skill Development						
Develop	Development Needs Employability							
Course	Description	This course provides under with various agencies invo- time experience. This will skills, and effective comm	This course provides undergraduate students with an opportunity to work with various agencies involved in the criminal justice system and get real time experience. This will develop skills in critical thinking, laboratory skills, and effective communication.					
Course	Outcomes		Teaching N	Aethods	Assessment Methods			
CO 1	To understa organisations administration	and the functions of va s involved in criminal ju on.	rious ustice Hands-on	training	Review			
CO 2	Analyse the the different science.	administration and activiti agencies in the field of for	es of ensic Hands-on	training	Review			
CO 3	Understand t various field	the scope of Forensic Scients.	ice in Hands-on	training	Review			
CO 4	Know the scientist to w	skillset require for a for or for a for ork in the industry.	rensic Hands-on	training	Review			
CO 5	Create know	ledge and give it to the soci	ety. Hands-on	training	Review			
Offered	by Forensi	c Science						

#### List of activities student must indulge in

# **Instructional Hours / Week : 6**

The students must undergo a 1- day internship in various labs/police station/ advocate office/court/ prison/ related industries to expose to the various agencies and their functioning.

- (i) Student must complete all 15 days of internship work and produce certificate issued by the respective agency for proof.
- (ii) A report comprise of the daily activities done by the student should be submitted within the stipulated time.
- (iii) During the end semester examination, the evaluation will be done by a panel of examiners, including internal examiners.
- (iv) A public viva voce, where the I, & II Year students will be the audience

Tools for Assessment								
CIA (50 Marks)								
Review - I Review - II Revi		Review - III	Document Preparation & Implementation	Total				
10	10	10	20	50				

ESE (50 Marks)								
Report	Presentation	Viva voce						
20	15	15						

	Mappi												
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Н	М	М	L	Н	М	М	М	Н	Н	Н	Н	М
CO2	Н	Н	М	М	Н	М	М	М	Н	Н	Н	М	Н
CO3	Н	Н	М	Н	Н	М	М	М	М	Н	Н	М	М
CO4	Н	Н	Н	М	Н	L	Н	Η	Н	М	Н	Н	М
CO5	Н	Н	М	Н	М	Н	М	М	Н	Н	М	Н	Н
H-High; M-Medium; L-Low													
		Cours	e desig	gned b	y			Verified by					

Course Code

Title	Title	

NASC

2022

000								
22U.	3FRT606	Discipline Specific Elect Corr	tive Pa ection	aper : II (C) – aal Administra	Intern ation	ship ; Police and		
Sem	ester : VI	Credits : 4	CIA	: 50 Marks	E	ESE : 50 Marks		
Course	Objective	The objective of this course is to provide undergraduate students with hands-on experience in the working of various organisations in the field of criminal justice administration.						
Course	Category	Skill Development						
Develop	ment Needs	Employability						
<b>Course Description</b> This course provides undergraduate students with an opportunity to with various agencies involved in the criminal justice system and get time experience. This will develop skills in critical thinking, labora skills, and effective communication.						opportunity to work system and get real hinking, laboratory		
Course	Outcomes			Teaching Me	thods	Assessment Methods		
CO 1	To understa organisations administration	rious istice	Hands-on tra	aining	Review			
CO 2	Analyse the the different science.	es of ensic	Hands-on training Review					
CO 3	Understand t various fields	he scope of Forensic Sciences.	ce in	Hands-on tra	aining	Review		
CO 4	<b>CO 4</b> Know the skillset require for a forensic scientist to work in the industry.			Hands-on tra	aining	Review		
CO 5	Create know	ledge and give it to the socie	ety.	Hands-on tra	aining	Review		
Offered by Forensic Science								

#### List of activities student must indulge in

#### Instructional Hours / Week : 6

The students must undergo a 15-day internship in various labs/police station/ advocate office/court/ prison/ related industries to expose to the various agencies and their functioning.

- (i) Student must complete all 15 days of internship work and produce certificate issued by the respective agency for proof.
- (ii) A report comprise of the daily activities done by the student should be submitted within the stipulated time.
- (iii) During the end semester examination, the evaluation will be done by a panel of examiners, including internal examiners.
- (iv) A public viva voce, where the I, & II Year students will be the audience

# **B. Sc. Forensic Science**

NASC | 2022

	Tools for Assessment CIA (50 Marks)							
Review - I	Review - II	Review - III	Document Preparation & Implementation	Total				
10	10	10	20	50				

ESE (50 Marks)									
Report	Report Presentation Viva voce								
20	15	15							

	Mapping												
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Н	М	М	L	Н	М	М	М	Н	Н	Н	Н	М
CO2	Н	Н	М	М	Н	М	М	М	Н	Н	Н	М	Н
CO3	Н	Н	М	Н	Н	М	М	М	М	Н	Н	М	М
CO4	Н	Н	Н	М	Н	L	Η	Н	Н	М	Н	Н	М
CO5	Н	Н	М	Н	М	Н	М	М	Н	Н	М	Н	Н
H-High;	M-Me	dium;	L-Low	1									
	(	Cours	e desig	gned b	у					Verifie	d by		

Course	Code			ſ	ſitle				
22U3FI	RV607		Discipline Specific Electiv	ve Pap	er : III (A) - P	roject a	and Viva voce		
Semest	er : VI		Credits : 4	CIA	: 50 Marks	E	SE : 50 Marks		
Course	Object	ive	The objective of this cou hands-on experience in con- developing skills in problem effective communication.	hands-on experience in conducting research projects, with a focus on developing skills in problem-solving, critical analysis, data collection, and effective communication.					
Course	urse Category Skill Development								
Develop	ment N	nent Needs Employability							
Course	Descrij	otion	This course provides undergraduate students with an opportunity to design, plan, and execute a research project in their field of study, developing skills in critical thinking, data analysis, and effective communication.						
Course	Outcor	nes			Teaching Me	ethods	Assessment Methods		
CO 1	Expla Foren	in the sic Scie	basic concepts of researc	ch in	Classroom		Review		
CO 2	Write	extens	ively about a particular topic.	•	Practical Tra	aining	Review		
CO 3	Analy	se liter	ature, collect data and interpr	ret it	Reading rev articles	iew	Review		
CO 4	Choose a problem and conduct a scientif enquiry on it.				Laboratory/ Survey		Review		
CO 5	5 Create knowledge and give it to the society.				Research pa writing	per	Review		
Offered	by F	orensi	c Science						

### List of activities student must indulge in

#### **Instructional Hours / Week : 6**

The students, under the guidance of a teacher shall take up a project on any relevant topic related to Forensic Science.

- (i) Each student will work on a topic/area of interest and conduct a micro level quantitative or qualitative study as their project work
- (ii) The student has to submit a project report and should appear for a public viva voce before a panel of internal and external examiners
- (iii) The project report will be evaluated at two levels- continuous assessment and end semester examination.
- (iv) A public viva voce.

# **Project Guidelines**

## ARRANGEMENT OF CONTENTS:

The sequence in which the project report material should be arranged and bound is as follows:

- 1. Cover Page & Title Page
- 2. Table of Contents
- 3. List of Tables
- 4. List of Figures
- 5. List of Symbols, Abbreviations
- 6. Chapters
- 7. References
- 8. Appendices The table and figures shall be introduced in the appropriate places

Tools for Assessment CIA (50 Marks)									
Review - I	Review - II	Review - III	Document Preparation & Implementation	Total					
10	10         10         10         20         50								

ESE (50 Marks)								
Report	Report Presentation Viva voce							
20	15	15						

	Mapping												
CO \ PO	PO1	PO2	PO3	PO4	PO5	<b>PO6</b>	<b>PO7</b>	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Н	М	-	L	М	Н	L	М	М	L	Н	Μ	L
CO2	Н	L	L	М	L	Н	М	М	L	Н	Н	Μ	L
CO3	Н	Μ	-	Н	М	Н	Н	L	М	Н	Н	М	L
CO4	Н	Н	Н	Μ	Н	Н	Н	Μ	L	М	Н	М	L
CO5	М	М	М	Н	L	Н	М	L	L	Н	М	М	L
H-High;	M-Mee	dium; I	L-Low										
		Cours	e desig	gned by	y					Verifie	d by		

Course	e Code		Title							
22U3F	RE608	]	Discipline Specific Elective	Paper : III (B) - Crimin Evidence	nal Proced	ure and				
Semest	er : VI		Credits : 4	CIA : 50 Marks	ESE : 50	Marks				
Course	Objectiv	ve	To understand the significa To study the conceptual mo To know the administration and interrogation of accuse	nt legal aids to access ju odule of studies related to setup and functions of e d.	stice systen o evidence. xamination	n. of witnesses				
Course	Categor	<b>·y</b>	Knowledge							
Develop	oment N	eeds	National							
Course	Descrip	tion	Course provides a compreh rules of evidence and crimi	ensive introduction and a nal procedural law	in-depth and	alysis of the				
Course	Outcom	ies		<b>Teaching Methods</b>	Assessme	ent Methods				
CO 1	Compr evidence	ehens ce bas	ive understanding of sed issues.	Lecture/Demonstration	Ass	ignment				
CO 2	Recogn context	nize ts.	the problem-solving	Lecture/ Case studies	Case	e studies				
CO 3	Examin	ne the	crime scene information.	Lecture/Demonstration	Seminar					
CO 4	4Discover the significant legal aids to access justice system.Lecture/Video lectureQuiz									
CO 5	Interpre functio and int	et the ns of erroga	e administration setup and examination of witnesses ation of accused.	Lecture/Demonstration	Ass	Assignment				
Offered	l by 🛛 Fa	orensi	c Science							
Course	Content	t		Instruction	onal Hours	s / Week : 6				
Unit			Description		Text Book	Chapters				
Ι	Crimin Historic organisa courts. Adalats	al cou al de ation a Crimi	<b>irts</b> velopment of judicial syste and functions of courts, Pow nal courts. Special courts, N	em in India, Structural vers and Jurisdiction of yaya Panchayat & Lok	1	all				
G		•		Instruction	nal Hours	18				
Suggest	ted Lear	ning al Pr4	Methods: Library extra rea	adıng						
п	Criminal ProcedureArrest of persons, Investigation, Search and Seizure. Summons to produce, Warrant of arrest, Search warrants. Inquiry, Bail proceedings, Remand, Summons and Warrant. Case / trials, Types of criminal trials, Plea bargaining, Role of prosecution, Appeal. Judgement – Reference and Revision.									
				Instruction	nal Hours	18				
Suggest	ted Lear	ning	Methods: Case studies							

NASC 2022

	Evider	ce in (	crimin	al cas	es																		
	Accusa	torial	svster	n vs.	inqui	sitorial	svste	m. Si	gnifican	ce of													
ш	eviden	ce. Ty	vpes o	of evi	dences	: Fa	nct in	issue.	Evide	nce -	1		all										
	Admis	sibility	and	releva	ancv	Confe	ssion	Dving	declar	ration	1		un										
	Expert	oninic	on Cor	spirac	v evid	ence	Approx	ver evi	dence	ution													
	p•==	opinio	, eor	sprice	5 0 1 20	,	-pp-o	•1 • • 1	Instr	uctions	Hour	а <sup>-</sup>	18										
Suggest	ed I ea	rning	Metho	de C	ace ctu	dies			11150	uctiona	li 110ul	<u> </u>	10										
buggest	<u>Judici</u>	al Pres	umnti	on. W	itness	and F	xamin	ation															
TV/	Presum	ntion	of law.	Presu	mntior	of fac	t Burd	en of r	roof W	itness <sup>.</sup>	1		-11										
1 V	Fxami	nation	Cross	exami	nation	Imne	aching	the cre	dit of w	vitness	1		all										
Latimation, Cross examination, impedening the credit of white											1 77		10										
Instructi											I Hour	<u>s</u> .	18										
Suggest	Ludgo	rilling nonte	wietho	us: Li	Drary	extra	reaum	g															
	Evenut	ion	fant	<b>an</b> aa	Sucro	ncion	of so	ntonoo	Domi	agion													
	Comm			ence,	Death		or se		, Kelli	SSIOII,			11										
V	Comm	Duch		Derela	. Deau			iprisor		solius,	1		all										
	rine,	Proba	uon,	Parole	e, Co	nantion	iai rei	lease,	Admo	ntion,													
	Comm	unity s	service	•																			
Instructio											l Hour	<b>s</b> 2	18										
Suggested Learning Methods: Case studies										<b>T</b> . 4	1 77		00										
Total Taxt Paaka 1 Criminal Procedure Code (CrDC) Dublished by										Hour	S S	90											
l ext Bo	Text Books     1. Criminal Procedure Code (CrPC) Published by Gol																						
				I. Sai	atny v	eppa,	P. (195	$^{4}$ ). Ele	ements of	of law o	r evider	nce.											
Referen	ce Boo	ks		2 Sin	or A	. Easie (1995	) I aw	of evi	dence A	llahaha	d· Allal	nahad											
				Lav	w Age	ncy.	). <b>D</b> utt	01 011		munuou	u. / 111u	luouu											
				То	ols for	Asses	sment	(50 M	arks)														
CIA	I	CL	A II	C	ΙΑΠ	As	ssignm	ent	Semin	ar (	Oniz	То	tal										
8			8		10		8		8		8	5	0										
						Ma	nning		0		•		•										
	DO1	DUJ	DO3	<b>P</b> O4	PO5		PDN7	DU8	DSO1	DSO2	DSU3	DSO/	DSO5										
CO(10	M	<u>102</u> М	-	<u>точ</u> М	<u>н</u>	-	<u>то</u> , М	-	H	-	н Н	<u>1304</u> Н	-										
CO2	M	M	-	M	Н	-	М	-	Н	-	H	Н	-										
CO3	М	М	-	М	Н	-	М	-	Н	-	Н	Н	-										
CO4	М	М	-	М	Н	-	М	-	Н	-	Н	Н	-										
CO5													-										
	M	М	-	М	Н	-	Μ	-	Н	-	Н	H	H-High; M-Medium; L-Low										
H-High;	M M-Me	M dium;	- L-Low	M	Н	-	М	-	Н	-	Н	Н											
H-High;	M M-Me	M dium; T C <b>ours</b>	- L-Low e <b>desig</b>	M ned b	Н <b>у</b>	-	M	-	Н	- Verifie	H d by	Н											
H-High;	M M-Me	M dium; T C <b>ours</b>	- L-Low e <b>desig</b>	M ned b	н <b>у</b>	-	M	-	H	Verifie	H d by	H											
H-High;	M M-Me	M dium; C <b>ours</b> e	- L-Low e <b>desig</b>	M ned b	<u>н</u> у		M	-	H	- Verifie	H d by	н											
H-High;	M M-Me	M dium; I C <b>ours</b> e	- L-Low e <b>desig</b>	M ned b	<u></u> у	-		-	H	- Verifie	H d by	H											
H-High;	M M-Med	M dium; T C <b>ours</b>	- L-Low e desig	M ned b	н у		<u>M</u>	_	H	Verifie	H d by	<u>H</u>											

Course	e Code		Title						
22U3F	RE609		Discipline Specific Electiv	ve Paper : III (C) - Foren Anthropology	sic Medici	ne and			
Semest	er : VI		Credits : 4	CIA : 50 Marks	ESE : 50	Marks			
Course	Objectiv	ve	To impart knowledge and reports and draw conclusion	skill of reading and under ons based on it.	rstanding n	nedico-legal			
Course	Categor	·y	Employability						
Develo	pment N	eeds	Global						
Course	Descrip	tion	Medico legal reports such the investigation. This cou about the various causes of	as postmortem report often arse is designed to provide of death and methodologie	n help to na an in-depth s to identify	arrow down 1 knowledge y them.			
Course	Outcom	es		Teaching Methods	Assessme	ent Methods			
CO 1	To und death	erstar	ad medico legal aspects of	Lecture/Demonstration	Assi	ignment			
CO 2	Identify post-m	y the to the to the termination of terminat	ime since death from report.	Lecture/ Case studies	Case	e studies			
CO 3	Unders	tand v	various causes of death.	Lecture/Demonstration	Se	eminar			
CO 4	Identify punish	y vari ments	ous injuries and associated with it.	Lecture/Video lecture	(	Quiz			
CO 5	5 Read and understand reports on crimes against body.			Lecture/Demonstration	Assi	ignment			
Offered	l by 🛛 Fa	rensi	c Science						
Course	Content	;		Instructio	onal Hours	s / Week : 6			
Unit				Text					
· · ····			Description		Book	Chapters			
I	Introdu Forensia Procedu death, S asphyxia methods	ction c M re: Ir uspen a, de s to id	to Forensic Medicine and edicine: Introduction, H inquest, Summons. Death: ided animation, Modes of c termination of time sinc entify living person for ger	<b>d Death</b> History, Scope, Legal Definition, types, brain leath: coma, syncope and the death, Identification: inder, race, age.	Book 1	Chapters 3			
I	Introdu Forensio Procedu death, S asphyxi methods	ction c M re: Ir usper a, de s to id	<b>to Forensic Medicine and</b> edicine: Introduction, H iquest, Summons. Death: ided animation, Modes of c termination of time sinc entify living person for ger	d Death History, Scope, Legal Definition, types, brain leath: coma, syncope and be death, Identification: nder, race, age. Instruction	Book 1 nal Hours	3 18			
I	Introdu Forensio Procedu death, S asphyxi methods	ction c M re: In uspen a, de s to id ning	to Forensic Medicine and edicine: Introduction, H inquest, Summons. Death: ided animation, Modes of d termination of time sind entify living person for ger Methods: Library extra r	d Death History, Scope, Legal Definition, types, brain leath: coma, syncope and the death, Identification: inder, race, age. Instruction eading	Book 1 nal Hours	3 18			
I Suggest	Introdu Forensio Procedu death, S asphyxi methods ted Lear Injury a Autopsy preparat and met Immedia mortem and mur and pos Mechan injuries, Medico of injuri	ction c M re: Ir uspen a, de s to id ning 1 and P c intri ion o hods, ate, F hypo nmifi t mor ical in Mec legal es by	to Forensic Medicine and edicine: Introduction, H inquest, Summons. Death: inded animation, Modes of d termination of time since entify living person for ger Methods: Library extra r fost Mortem Examination roduction, legal requirement f autopsy report, Examina Examination of bones, Ext Early and Late. Rigor modes stasis, muscle changes, put cation. Injury: definition, classific term injuries, estimation of injuries: definition, classific lico legal aspects of injut aspects in cases of burns a torture	<b>d Death</b> History, Scope, Legal Definition, types, brain leath: coma, syncope and the death, Identification: inder, race, age. Instruction eading the to conduct autopsy, tion of dead body: types numation, Signs of death: ortis, algor mortis, post trefaction, saponification assification, ante mortem f age of different types, ation, Causes of death by uries, vehicular injuries, and scalds- Identification	Book 1 nal Hours	3 18 16			
I	Introdu Forensio Procedu death, S asphyxi methods ted Lear Injury a Autopsy preparat and met Immedi mortem and mur and pos Mechan injuries, Medico of injuri	ction c M re: Ir uspen a, de s to id ning is to id ning is to id ning is to id ning is to id ning is to id ning is to id not hods, ate, F hypo nmifi t mon ical in Mec legal es by	<b>Description</b> <b>to Forensic Medicine and</b> edicine: Introduction, Head inducest, Summons. Death: ided animation, Modes of of termination of time since entify living person for ger <b>Methods: Library extra r</b> <b>cost Mortem Examination</b> roduction, legal requirement f autopsy report, Examina Examination of bones, Exh Early and Late. Rigor most stasis, muscle changes, put cation. Injury: definition, classific lico legal aspects of injut aspects in cases of burns a torture	<b>d Death</b> History, Scope, Legal Definition, types, brain leath: coma, syncope and the death, Identification: inder, race, age. <b>Instruction</b> eading tents to conduct autopsy, tion of dead body: types numation, Signs of death: ortis, algor mortis, post trefaction, saponification assification, ante mortem f age of different types, ation, Causes of death by pries, vehicular injuries, and scalds- Identification	Book 1 nal Hours 1	3         18         16         18			

III Sugges IV	Offences ag Sexual offer victim, The burns, scald influencing, Lightning s radioactive <b>sted Learning</b> Forensic An Introduction skeletal sys Characterist	d h s s, s, <b>onal Hours</b> n s, 1	17 18 21									
	human and bones: estin	e importance o	of									
	1	Instructio	onal Hours	18								
Sugges	ted Learning	g Methoo	ls: Laborator	y practice								
V	Ossification Ossification points in hu Rate of ossi ossification bones, the Humerus ra Femur tibia	n  n 1 nt 1 s,	9,10									
	•				Instructio	onal Hours	18					
Sugges	ted Learning	g Methoo	ls: Hands on t	training			- F					
					Т	Suggested Learning Methods: Hands on training						
Total Hours       90         Text Books       1. Narayana Reddy K.S, Introduction to Forensic Medicine and							90					
Text B	ooks	1.	Narayana Ro Toxicology,	eddy K.S, Intro 13 <sup>th</sup> edition.	duction to Fo	otal Hours rensic Med	90 icine and					
Text B Refere	ooks nce Books	1. 1. 2. 3. 4. 1.	Narayana Ro Toxicology, Text book of edition, Para Fundamental Publishers- H Guharaj Fore Orient Longu Nicholas V. and Practice.	eddy K.S, Intro 13 <sup>th</sup> edition. F Forensic Medi s Medical Publi ls of Forensic Books and Allie ensic Medicine: man, 2 <sup>nd</sup> Edition Piscataqua: For	duction to Fo cine and Toxo shing, Hydera Medicine and (P) LTD, Kol P V Guharaj, E n, Hyderabad. rensic Anthrop	otal Hours rensic Med cology: V V bad. Toxicolog kata. Edited by M ology: Curr ?catid=eCJf	90 icine and V Pillay, 15 <sup>th</sup> gy: R. Basu, R Chandran, rent Methods					
Text B Refere Web. U	ooks nce Books URLs	1. 1. 2. 3. 4. 1. 2. 3.	Narayana Ro Toxicology, Text book of edition, Para Fundamental Publishers- H Guharaj Fore Orient Longu Nicholas V. and Practice. https://epgp.im CLa6VYg== https://epgp.im P000701/M01 https://epgp.im P001353/M02	eddy K.S, Intro 13 <sup>th</sup> edition. Forensic Medi s Medical Publi ls of Forensic Books and Allie ensic Medicine: man, 2 <sup>nd</sup> Edition Piscataqua: For flibnet.ac.in/Hom aflibnet.ac.in/epg 5724/ET/146433 aflibnet.ac.in/epg 26913/ET/151625	duction to Fo cine and Toxo shing, Hydera Medicine and (P) LTD, Kol P V Guharaj, E n, Hyderabad. rensic Anthrop ne/ViewSubject pdata/uploads/ej 4684FSC_P11_	otal Hours rensic Med cology: V V bad. Toxicolog kata. Edited by M ology: Curr ?catid=eCJf pgp_content/ _M9_e-text.p pgp_content/ _M35_e-text	90 icine and V Pillay, 15 <sup>th</sup> gy: R. Basu, R Chandran, rent Methods y23Kjy3c0vI /S000016FS/ odf /S000016FS/ .pdf					
Text B Refere Web. I	ooks nce Books URLs	1. 1. 2. 3. 4. 1. 2. 3. 3.	Narayana Ro Toxicology, Text book of edition, Para Fundamental Publishers- F Guharaj Fore Orient Longe Nicholas V. and Practice. https://epgp.im CLa6VYg== https://epgp.im P000701/M01 https://epgp.im P001353/M02	eddy K.S, Intro 13 <sup>th</sup> edition. Forensic Medi s Medical Publi ls of Forensic Books and Allie ensic Medicine: man, 2 <sup>nd</sup> Edition Piscataqua: For flibnet.ac.in/epgj 5724/ET/146433 flibnet.ac.in/epgj 26913/ET/151625 ssessment (50 N	duction to Fo cine and Toxo shing, Hydera Medicine and (P) LTD, Koll P V Guharaj, E h, Hyderabad. rensic Anthrop ne/ViewSubject pdata/uploads/ej 54542FSC_P14_ pdata/uploads/ej 54684FSC_P11_ Marks)	otal Hours rensic Med cology: V V bad. Toxicolog kata. Edited by M ology: Curr ?catid=eCJf pgp_content/ _M9_e-text.p pgp_content/ _M35_e-text	90 icine and V Pillay, 15 <sup>th</sup> gy: R. Basu, R Chandran, rent Methods y23Kjy3c0vI /S000016FS/ odf /S000016FS/ .pdf					
Text B Refere Web. U	ooks nce Books URLs A I C	1. 1. 2. 3. 4. 1. 2. 3. 3. <b>IA II</b>	Narayana Ro Toxicology, Text book of edition, Para Fundamental Publishers- H Guharaj Fore Orient Longr Nicholas V. and Practice. https://epgp.im CLa6VYg== https://epgp.im P000701/M01 https://epgp.im P001353/M02 Tools for As	eddy K.S, Intro 13 <sup>th</sup> edition. Forensic Medi s Medical Publi ls of Forensic Books and Allie ensic Medicine: man, 2 <sup>nd</sup> Edition Piscataqua: For flibnet.ac.in/Hon aflibnet.ac.in/epg 5724/ET/146433 flibnet.ac.in/epg 6913/ET/151625 ssessment (50 M Assignment	duction to Fo cine and Toxo shing, Hydera Medicine and (P) LTD, Kol P V Guharaj, E n, Hyderabad. rensic Anthrop me/ViewSubject pdata/uploads/ej 1542FSC_P14_ pdata/uploads/ej 4684FSC_P11_ Marks) Seminar	otal Hours rensic Med cology: V V bad. Toxicolog kata. Edited by M ology: Curr ?catid=eCJf pgp_content/ _M9_e-text.p pgp_content/ _M35_e-text	90 icine and V Pillay, 15 <sup>th</sup> gy: R. Basu, R Chandran, rent Methods y23Kjy3c0vI /S000016FS/ odf /S000016FS/ .pdf Total					

	Mapping												
CO \ PO	<b>PO1</b>	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Н	М	М	Н	М	-	М	-	-	М	Н	L	-
CO2	Μ	Н	Н	Н	М	-	Н	-	-	Н	Н	L	-
CO3	Н	Н	М	Н	М	-	Н	-	-	Н	Н	L	-
CO4	М	М	L	Н	Н	-	Н	-	-	Н	Н	Н	-
CO5	М	М	L	Н	Н	М	Н	-	-	М	Н	Н	-
H-High;	M-Me	dium;	L-Low	,									
	С	ourse	design	ed by					T	Verified	by		

Course	e Code		Title							
22U4F	RS604		Skill Based Paper IV – A	Audio Video and Sp	eakeı	· Identific	ation			
Semest	ter : VI		Credits : 3	CIA : 30 Marks		ESE : 45	Marks			
Course	Objecti	ve	To learn the acquisition, recordings and speaker ultimately be presented as	, analysis, and eval identification by co admissible evidence	uatio mpar in a c	n of audi ing voices court of lav	o & video s that may			
Course	Catego	y	Skill development							
Develo	pment N	eeds	Global							
Course	Audio-Video forensics in video recordings which are legal proceedings. speaker and spectrographic analysi speech.	volves the scientific e obtained from a civ dentification usually s of voice and identify	inter vil inv y con ying a	pretation vestigation sists of the person so	of audio & or criminal e both aural lely by their					
Course	Outcom	les		Teaching Metho	ods	Assessme	nt Methods			
CO 1	Extract source.	an a	udio or video clip from the	Lecture/Demonstra	ation	Assi	gnment			
CO 2	Enhano examir	the the ation	audio and video signals for	Lecture/ Case studi	ies	Case	se studies			
CO 3	Check video f	the a ïle	uthenticity of an audio or	Lecture/Demonstra	ation	Sei	ninar			
<b>CO 4</b>	Identif	icatio	n of the voice (speaker).	Lecture/Video lecture	ure	Ç	Quiz			
CO 5	Have examin	a stron	ong foundation on visual of audio spectra.	Lecture/Demonstra	tion	Assi	gnment			
Offered	l by Fo	orensi	c Science							
Course	Content	t		Instr	uctio	nal Hours	/ Week : 6			
Unit			Description			Text Book	Chapters			
I	Basic C Basic E Filters a Noise Charact Diffusic Video fi	Electri and I Char eristic on. Re ile for	ts c Circuits - LR, CR, LCR Digital Filters (high pass fr acteristics : Properties cs of Environments-Diffrac ecording Formats - Analog mats. Linear and Non –linea	circuits, Convention ilters, low pass filte of Noise, Acou tion, Reverberation and Digital, Audio ar Editing.	onal ers). stic and and	1	1			
Suggos	tod I oom	nina	Mathada, Libnany aytna na	Instru	ction	al Hours	18			
Sugges	Introdu	ning Iction	to video technology	auing						
Π	Conceptechnolo Digital frame in	t of ogy co Water nage	Video film production - omponent of Digital Image r Marking. Visual examinat - Facial Image Recognition	Introduction to video Processing. Concept of ation technique on video from video frame image.			2			
C	tod T	• · · ·	Mathadaa Daaraa ' t	Instru	ction	al Hours	18			
Sugges	ted Lear	ning	Methods: Power point pre	sentation						

	Forensic aud	io and video analysis						
ш	Introduction understanding Video Evider audio and vid analysis. Reco Files recover Software used and video evi	to Forensic Audio & Video Analysis: A basic g of forensic audio and video technology - Audio and ice handling procedures. Authentication of recorded leo. Scientific methodology of forensic audio-video overy of digital audio-video / Deleted Video & Audio y - Exporting evidence as video or still image files- l for audio and video analysis. Admissibility of audio dence in court.	1	3				
	I	Instruction	al Hours	18				
Sugges	ted Learning	Methods: Online training						
	<b>Basics of spe</b>	aker identification						
IV	Introduction: Forensic cha Parameters : A Linguistic Par Requirements tract and the Vocal tract str Nasals and Na – Active/Pass Prosodic fea Nasalization,	Forensic Speaker Identification, Forensic Phonetics- llenges in Voice recognition. Forensic Phonetic Acoustic vs. Auditory Parameters, Linguistic vs. Non- rameters. Forensic Significance : Linguistic Analysis- on forensic-phonetic parameters. The human vocal production and description of speech parameters : ructures. Forensic Significance – Vocal cord activity, asalization. Phonetic Aspects of Speech : Articulators sive, Phonemes –Segmental and Supra segmental, atures- Stress, Intonation, Duration, Syllables, Accent features.	1	4				
	1	al Hours	18					
Sugges	ted Learning	Methods: Video lectures						
V	Forensic speaker identificationCharacterizing Forensic Speaker Identification: SpeakerRecognition – Speaker Identification and Verification, ForensicSignificance. Components of Speaker Recognition. Approaches toSpeaker Recognition System of Auditory Analysis, Spectrographicapproach or Voice Print Identification. Automatic Approach:Gaussian Mixture Models, Long Term Averaging, VectorQuantization, Hidden Markov Models, NeuralNetworks. Expressing Results in Forensic Speaker Recognition–Likelihood Ratio, Objective/Subjective Methods. Concept of Testand Error in Speaker Identification. Admissibility of Voice							
		Instruction	al Hours	18				
Sugges		0.2						
		Tot	al Hours	90 Nut				
Text Books		1. Notes compiled by the department of Forensic Science, Nehru Arts and Science College, Coimbatore.						
Reference Books		<ol> <li>Philip Rose; Forensic Speaker Identification, Taylor and Francis, Forensic Science Series, London (2002)</li> <li>Bengold &amp; Nelson Moryson; Speech and Audio signal processing, John Wiley &amp; Sons, USA (1999)</li> <li>Oscar Tosi; Voice Identification-Theory of Legal Applications, University Park Press. Baltimore (1979)</li> </ol>						

Tools for Assessment (30 Marks)														
CIA I CIA II			C	CIA III		Assignment		Seminar		Quiz		Total		
4 4			7		5		5	5		5	30			
						M	appin	3						
CO \ PO	<b>PO1</b>	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSC	)2	PSO3	PSO4	PSO5
CO1	Н	Н	Н	Н	М	L	L	-	-	Н		Н	Μ	-
CO2	Н	Н	Н	Н	М	L	М	-	-	Н		Н	М	-
CO3	Н	Н	Н	Н	М	L	М	-	-	Н		Н	М	-
CO4	Н	Н	Н	Н	Μ	L	М	-	-	Н	[	Н	Μ	-
CO5	Н	L	L	Н	М	L	L	-	-	Н	[	Н	Μ	-
H-High;	M-Me	dium;	L-Low	,										
		Course	e desig	ned by	y			Verified by						

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Cou	irse Code	Title								
220	J <b>FRSS01</b>	Self Study Paper I - Serious Fraud Investigation								
Semest	er : II - V	Credits : 1 ESE : 50 Marks								
Course	Objective	To provide general awareness about various types of frauds prevail in India.								
Course	Category	Knowledge								
Develop	pment Needs	National								
Course	Description	Course will hone the understanding of the causes of fraud and their significance in effectively fighting this white-collar crimes and to explore a range of methods for preventing, detecting, investigating and resolving fraud committed against organisations and individuals.								
	-	Course Outcomes								
CO 1	Able to unde	rstand the conceptual perspectives of White-collar crimes								
CO 2	Become awa	re of different types of fraud crimes								
CO 3	Understand t	he concepts of Corruption in Politics and Government								
CO 4	Understand t	he Professional Deviances								
CO 5	Acquire know	wledge of public sector frauds and response of Indian Legal Order.								
Offered	l by Forensi	c Science								
Course	Content									
Unit		Description								
I	Conceptual Perspective of White-Collar Crimes Conceptual Perspective of White-Collar Crimes, Understanding White-Collar Crime Concept, meaning, Definitions, Extent, and Consequences. Indian Approaches to Soci economics Offences, Privileged class deviance, Growth of White-Collar Crimes, Need f									
п	Types of Fraud crimes         Crimes in Sales, Related Occupations, Crimes by the Corporate System, Environment         Crime, Crimes in the Health Care System, Crime in the Economic and Technologic         Systems, Crimes in the Housing System.									
III	Corruption in Politics and Government           Some Major Scandals: Bofors Scandal, Stock Market Manipulation Scam 1999-2001, 24           Spectrum Allocation Scandal, Commonwealth Games Scandal, Satyam Computer Scan           Fodder Scam         IBT Scam and Latest Coal Scam									
IV	<b>Professional</b> Unethical prac Malpractice, 0	<b>Deviance</b> ctices of the Indian Bar, Unprofessional and Unethical Journalism, Medical Organizational or Corporate Crime.								
V	Public sector Law Commis Commission,	<b>frauds and Response of Indian Legal Order</b> ssion recommendations- White Paper on white collar crime, Vigilance Public Account Committee, Ombudsman Lokpal Bill.								
Text Bo	ooks	<ol> <li>Upendra Baxi, The Crisis of the Indian Legal System (1982) Vikas Publishing House, New Delhi.</li> </ol>								

			1. Upendra Baxi (ed.), Law and Poverty: Essays (1988)												
			2. Upendra Baxi, Liberty and Corruption: The Antulay Case and												
<b>Reference Books</b>			Beyond (1989)												
			3	3. Surendranath Dwevedi and G.S. Bbargava, Political Corruption in											
				Indi	a (196	7)				-		-			
						Ma	pping								
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	Μ	L	-	-	Н	L	L	-	Н	-	М	Н	-		
CO2	Μ	L	-	-	Н	L	L	-	Н	-	М	Н	-		
CO3	Μ	L	-	-	Н	L	L	-	Н	-	М	Н	-		
CO4	Μ	L	-	H L L					Н	-	М	Н	-		
CO5	Μ	L	-	-	Н	L	L	-	Н	-	М	Н	-		
H-High; M-Medium; L-Low															
	Course designed by								Verified by						

Cou	irse Code	Title									
220	J <b>FRSS02</b>	Self Study Pa	aper II - Corporate Law								
Seme	ster : II - V	Credits : 1	ESE : 50 Marks								
Course	Objective	To provide general awareness a	To provide general awareness about corporate law in India								
Course	Category	Knowledge									
Develo	pment Needs	National									
Course	Description	Emerging Indian market faces a corporate field. An awareness a to pursue a career in corporate l	a lot of crime related challenges in its bout the corporate law enable the learner legal sector and forensic finance.								
Course	Outcomes										
CO 1	Learn the con	ncept of Corporate law									
CO 2	Understandir	ng of corporate governance and f	inance								
CO 3	Able to unde	erstand Corporate Restructuring, 1	Insolvency and Securities Law								
<b>CO 4</b>	To become a	ware about Competition Law and	l Intellectual Property Law								
CO 5	To understan Law	d Corporate Dispute Resolution,	d Corporate Dispute Resolution, Taxation, and International Corporate								
Offeree	l by Forensi	c Science									
Course	Content										
Unit		Descrip	tion								
I	<b>Introduction</b> Definition and of companies	to Corporate Law d nature of a corporation, corporate personality and limited liability, Types in India, Incorporation and registration process									
II	<b>Corporate G</b> Board of Dire Corporate Soc	overnance and Finance ctors, Shareholders and their rights, Role of auditors and other professionals, ial Responsibility (CSR), Shares and debentures, Capital and debt financing									
	Corporate R	estructuring, Insolvency and Securities Law									
III	Restructuring Liquidation and of securities m	and reorganization of companie nd winding up, Securities and Ex narkets, Insider trading and mark	nd reorganization of companies, Insolvency and bankruptcy proceedings, I winding up, Securities and Exchange Board of India (SEBI), Regulation arkets, Insider trading and market manipulation								
	Competition	Law and Intellectual Property Law									
IV	Competition agreements a Protection of	Act, 2002, Competition Comm and abuse of dominant position intellectual property rights, Tech	nission of India (CCI). Anti-competitive on, Patents, trademarks, and copyrights, nology transfer and licensing agreements								
	Corporate Di	spute Resolution, Taxation, and International Corporate Law									
V	Alternative di procedures, c implications o investment la acquisitions	spute resolution methods, Arbitr corporate tax laws and regulati of corporate restructuring and N tws. Foreign investment regulat	ation and conciliation, Litigation and court ons, Tax planning and compliance. Tax <i>I</i> &A transactions, international trade and ions in India, Cross-border mergers and								
Text B	ooks	<ol> <li>Upendra Baxi, The Crisis of the Indian Legal System (1982) Vikas Publishing House, New Delhi.</li> </ol>									

			1. Upendra Baxi (ed.), Law and Poverty: Essays (1988)											
			2. Upendra Baxi, Liberty and Corruption: The Antulay Case and											
<b>Reference Books</b>			Beyond (1989)											
	3	3. Surendranath Dwevedi and G.S. Bbargava, Political Corruption in												
				Indi	a (196	7)				-		-		
						Ma	pping							
CO \ PO	PO1	PO2	PO3	PO4	PO5	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	М	М	-	Н	Н	L	М	-	Н	-	Н	Н	-	
CO2	М	М	-	Н	Н	L	L	-	Н	-	Н	Н	-	
CO3	М	М	-	Н	Н	L	М	-	Н	-	Н	Н	-	
CO4	М	М	-	Н	Н	L	М	-	Н	-	Н	Н	-	
CO5	М	М	-	Н	Н	L	М	-	Н	-	Н	Н	-	
H-High;	M-Me	dium;	L-Low	,										
		Cours	e desig	ned by	y			Verified by						