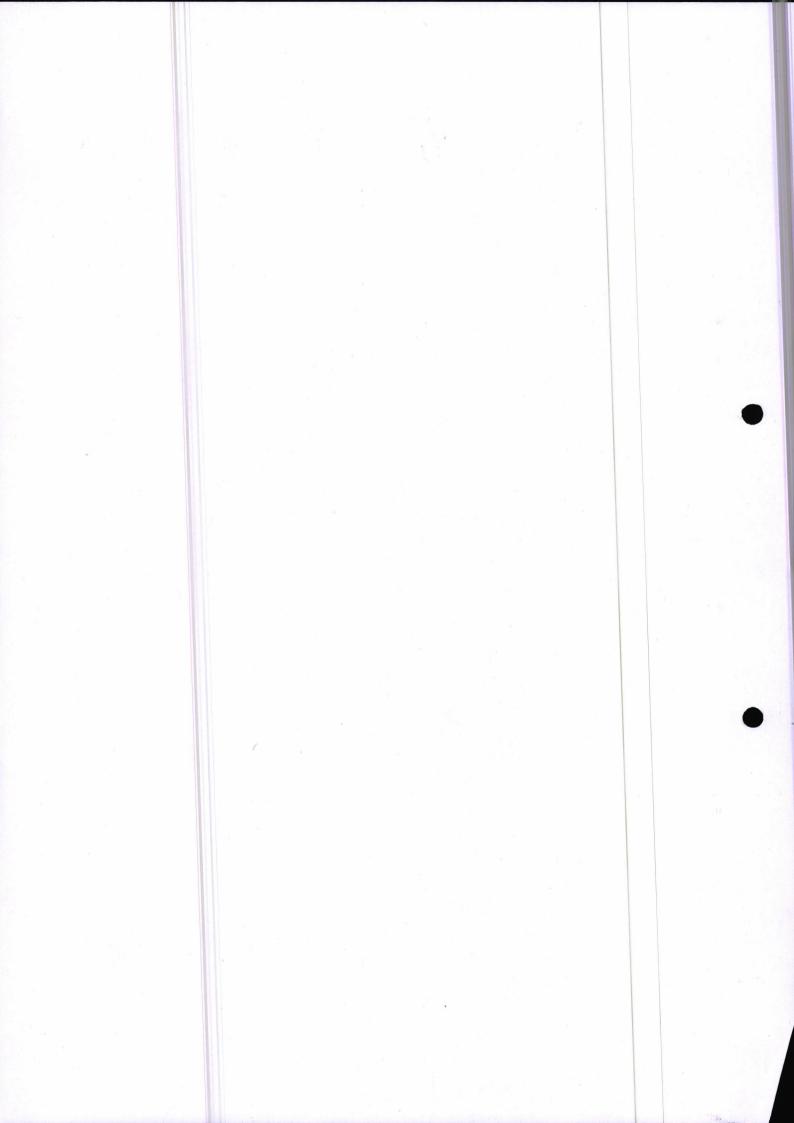
				cheme	of S	Stud	dy/E	Exar	-				Inter	all l		Deces	-		-	a a ti	al //	tern	-	-		1
Semester/Year	Subject Code	Nomenclature								Pass		Assignment Professional Activities			Demonstration/Conduct/Presentation	Viva-voce			Attendance & Regularity in Lab Work Proiect/I aboratory work report	ination/Assessment	Demonstration			Total marks	Overall Pass	Scheme of Examination
	-	English	Theory	AECC	2	0	0	2	Ž 30	12	2	Y G			ŏ	S	ž	å i	A A	2	C	Z	à	50		Theory+Internal
	17040101	Introduction to Forensic Science	Theory	Core	4		0			24			0 40							-	-	-	-	100		Theory+Internal
	17040102	Introduction to Forensic Science Lab	Practical	Core	0		4	2		1.00				-	20	20	40	16	10 1	0 1	3	0 6) 24	1 100		Practical +Internal
1/1	17040103	Crime Scene Investigation	Theory	Core	4	-	0		60	24	20	10 1	0 40	16								-		100		Theory+Internal
1/1	17040104	Crime Scene Investigation Lab	Practical	Core	0								1		20	20	40	16	10 1	0 1) 3	0 6) 24	100		Practical +Interna
	17040105	Technological Methods in Forensic Science	Theory	SEC	4		0					10 1											-	100		Theory+Internal
		Multi-disciplinary General Elective (MGE-1)	Theory	MGE	4		0					10 1					-	-	-	-	-	-	-	100		Theory+Internal
		Value Added Course (VAC-1)	Theory	VAC	2	0	0	2	30	12	10	5 5	5 20	8										50	20	Theory+Internal
	-	Environmental Science	Theory	AECC	2	0	0	12	30	12	10	5 6	5 20	8			T	1		1	T	T	-	50	20	Theory+Internal
	17040201	Questioned Document Examination	Theory	Core	4		0					10 1					-	-	-	-	+	-	+	100		Theory+Internal
1	17040202	Questioned Document Examination Lab	Practical	Core	0	-			-			-		1	20	20	40	16	10 1	0 1	3	0 6	24	1 100		Practical +Interna
	17040203	Fingerprints and other Impression Evidence	Theory	Core	4	-			60	24	20	10 1	0 40	16							1			100		Theory+Internal
11/1	17040204	Fingerprints and other Impression Evidence Lab	Practical	Core	0		4					-			20	20	40	16	10 1	0 1	3	0 6) 24	1 100		Practical +Interna
	17040205	Proactive and Reactive Forensics	Theory	SEC	4			4	60			10 1												100		Theory+Internal
		Multi-disciplinary General Elective (MGE-2)	Theory	MGE	4		0	4	60	24	20	10 1	0 40	16	1.1			19.13	1			100	1	100		Theory+Internal
		Value Added Course (VAC-2)	Theory	VAC	2	0	0					5 5											S. 19	50		Theory+Internal
	1	Livera Values 9 Ethics	Theres	14500	10			1.0	20	10	10		1 00							1	-	-	-	1.50	1 00	Theony laters
1	17040301	Human Values & Ethics Forensic Accounting	Theory Theory	AECC Core	2			2	30	24	20	5 5	0 40	16	-		-			-	-	-	+-	50		Theory+Internal Theory+Internal
	17040301	Forensic Accounting Lab	Practical	Core	0					27	20		0	10	20	20	40	16	10 1	0 1	3	0 6	0 24			Practical +Interna
	17040302	Crime Scene Ethics and Evidence Management	Theory	Core	4					24	20	10 1	0 40	16							1			100		Theory+Internal
111/11	17040304	Crime Scene Ethics and Evidence Management Lab	Practical	Core	0									1.0	20	20	40	16	10 1	0 10	3	0 6	0 24			Practical +Interna
	17040305	Accidental Investigation	Theory	Core	4	0			60	24	20	10 1	0 40	16						0		1		100	40	Theory+Internal
	17040306	Accidental Investigation Lab	Practical	Core	0		4								20	20	40	16	10 1	0 10) 3	0 6) 24	100		Practical +Interna
		Multi-disciplinary General Elective (MGE-3)	Theory	MGE	4		0					10 1			1		-				-		_	100		Theory+Internal
2		Value Added Course (VAC-3)	Theory	VAC	2	0	0	2	30	12	10	5 5	5 20	8										50	20	Theory+Internal
1000	1	Soft Skills	Theopy	AECC	2	0	0	2	20	12	10	5 5	1 20			1	-	-	-	1	T	-		50	20	Theonytintornal
	17040401	Smart Device Forensics	Theory Theory	Core	4		0					10 1				-	-	-		-	+	-	-	100		Theory+Internal Theory+Internal
	17040401	Smart Device Forensics Lab	Practical	Core	0		4		00				0	10	20	20	40	16	10 1	0 10	3	0 6	0 24			Practical +Interna
	17040403	Photography and its Forensic Significance	Theory	Core	4		0		60	24	20	10 1	0 40	16						-	1			100		Theory+Internal
IV/II	17040404	Photography Lab	Practical	Core	0		4								20	20	40	16	10 1	0 10	3	0 6) 24	100		Practical +Interna
	17040405	Psychology and Criminology	Theory	Core	4		0	4	60	24	20	10 1	0 40	16										100		Theory+Internal
	17040406	Psychology and Criminology Lab	Practical	Core	0		4								20	20	40	16 '	10 1	0 10) 3	0 60) 24	100		Practical +Interna
	'	Multi-disciplinary General Elective (MGE-4)	Theory	MGE	4							10 1							-	-	-	-	-	100		Theory+Internal
-		Value Added Course (VAC-4)	Theory	VAC	2	0	0	2	30	12	10	5 5	20	8		_					1			50	20	Theory+Internal
-	17040501	Adulteration in Edible Items	Theory	Core	4	0	0	4	60	24	20	10 1	0 40	16		1	Т		T	T	T	T	T	100	40	Theory+Internal
	17040502	Adulteration in Edible Items Lab	Practical	Core		0		2					- +0	1.0		20	40	16	10 1	0 10) 30	0 60) 24	100		Practical +Interna
	17040503	Forensic Ballistics	Theory	Core	4		0			24	20	10 1	0 40	16							1	1		100		Theory+Internal
	17040504	Forensic Ballistics Lab	Practical	Core	0		4	2			1.5				20	20	40	16	10 10	0 10	3	0 60) 24	100		Practical +Interna
	17040505	Forensic Biology	Theory	DSE		0				24	20	10 1	0 40	16				-						100	40	Theory+Internal
	17040506	Forensic Biology Lab	Practical	DSE		0	4	2	1						20	20	40	16 1	10 10	0 10) 3(60) 24	100		Practical +Interna
	17040507	Forensic Serology	Theory	DSE	4		0			24	20	10 10	0 40	16	1								_	100		Theory+Internal
	17040508	Forensic Serology Lab	Practical	DSE		0	4				-	-			20	20	40	16 1	10 11	0 10	30	60) 24	100		Practical +Interna
	17040509	Forensic Chemistry	Theory	DSE		0				24	20	10 10	0 40	16	00	00	10	10			-	-	-	100		Theory+Internal
V/III	17040510	Forensic Chemistry Lab	Practical	DSE		0	4			01		10		11	20	20	40	16 1	10 10	0 10	30	60	24	100		Practical +Interna
	17040511	Forensic Toxicology	Theory	DSE	4		0			24	20	10 10	40	16	20	20	10	16	10 1	1 11			1 24	100		Theory+Internal
	17040512	Forensic Toxicology Lab	Practical	DSE		0	4			24	20	10 0	1 10	10	20	20	40	10	10 10	10	30	1 60	1 24	100		Practical +Interna
	17040513	Advanced Questioned Document Examination Advanced Questioned Document Examination Lab	Theory	DSE	4		0		60	24	20	10 10	40	16	20	20	10	16	10 10	1 11	1		1 24	100		Theory+Internal
		LAGVANCED QUESTIONED LOCUMENT EXAMINATION LAD	Practical	DSE	0	0	4	2					1	1 1	201	201	401	101		1110	1130	11 00	1124	100	40	Practical +Internal
	17040514 17040515	Advanced Fingerprint and Other impression Evidence	Theory	DSE	4		0		60	24	20	10 10	1 40	10		-								100	40	Theory+Internal

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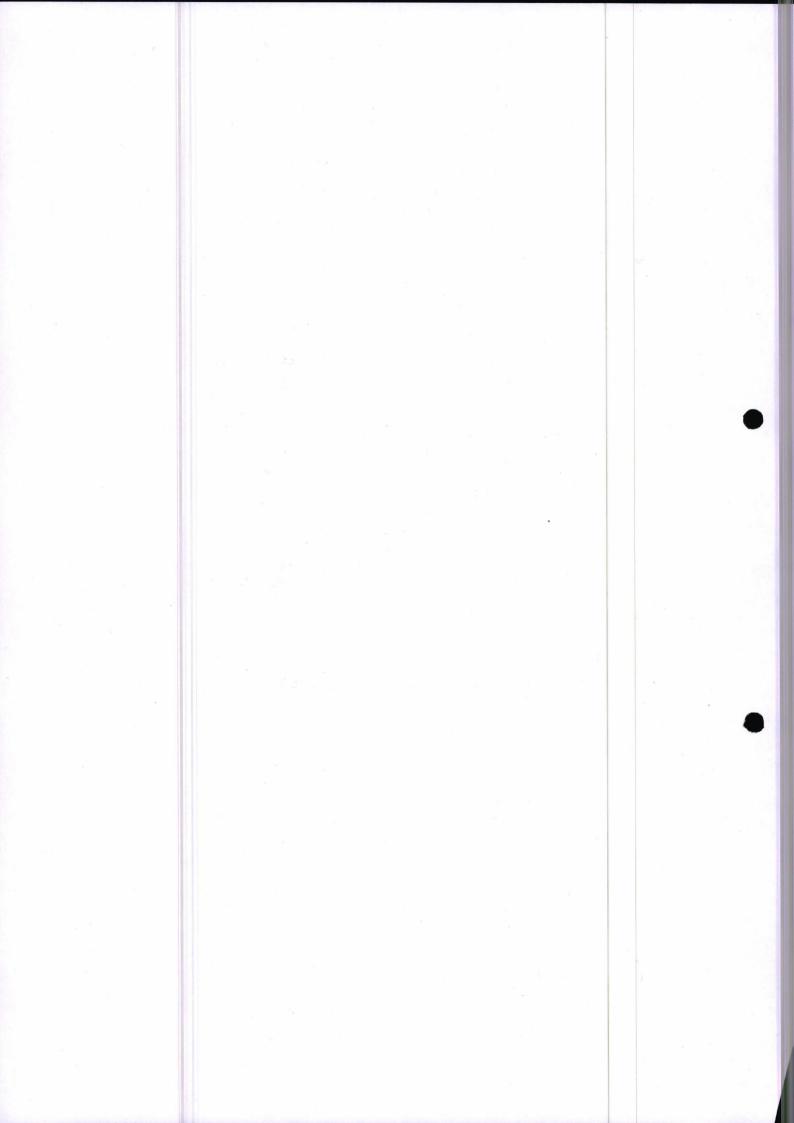
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-	Г	17040517	Introduction to Computer Forensics	Theory	DSE	4	0	0	4	60	24	20	10	10	40	16		T	T					-		100	40	Theory+Internal
48	F	17040518	Introduction to Computer Forensics Lab	Practical	DSE	0		4	2								20 20	40	16	10	10	10	30	60	24	100	40	Practical +Internal
49	- F	17040519	Cyber Security and Data Protection	T	DSE	4	0	0		60	24	20	10	10	40			1								100	40	Theory+Internal
50		17040520	Cyber Security and Data Protection Lab	P	DSE	0			2				-		-		20 20	40		10	10	10	30	60	24	100	40	Practical +Internal
								- 2,								3018				1					1			
51		17040601	Forensic Odontology	Theory	Core	4	0	0	4	60	24	20	10	10	40				1						-	100	40	Theory+Internal
52	E	17040602	Forensic Odontology Lab	Practical	Core	0	0	4	2								20 20) 40	16	10	10	10	30	60	24	100	40	Practical +Internal
53		17040603	Forensic Anthropology	Theory	Core	4	0	0	4	60	24	20	10	10	40	16	1									100	40	Theory+Internal
54		17040604	Forensic Anthropology Lab	Practical	Core	0	0	4	2		-						20 20) 40	16	10	10	10	30	60	24	100	40	Practical +Internal
55		17040605	Forensic Genetics and DNA Profiling	Theory	DSE	4	0	0	4	60	24	20	10	10	40	16					1	189		1204		100	40	Theory+Internal
56	E	17040606	Forensic Genetics and DNA Profiling Lab	Practical	DSE	0	0	4	2	1311	1	1.00					20 20) 40	16	10	10	10	30	60	24		40	Practical +Internal
57		17040607	Bioinformatics	Theory	DSE	4	0	0	4	60	24	20	10	10	40	16					14.57			2.1		100	40	Theory+Internal
58		17040608	Bioinformatics Lab	Practical	DSE	0	0	4	2	1	1.2			1.0			20 20) 40	16	10	10	10	30	60	24	100	40	Practical +Internal
59		17040609	Pharmacokinetics and Pharmacology	Theory	DSE	4	0	0	4	60	24	20	10	10	40	16								2.2		100	40	Theory+Internal
00	1/111	17040610	Pharmacokinetics and Pharmacology Lab	Practical	DSE	0	0	4	2				100	1	1.		20 20) 40	16	10	10	10	30	60	24	100	40	Practical +Internal
61 V		17040611	Instrumentation in Chemical Sciences	Theory	DSE	4	0	0	4	60	24	20	10	10	40	16			19.20		2.			-	1	100	40	Theory+Internal
62		17040612	Instrumentation in Chemical Sciences Lab	Practical	DSE	0	0	4	2				1.00				20 20) 40	16	10	10	10	30	60	24	100	40	Practical +Internal
63		17040613	Security Documents and its Examination	Theory	DSE	4	0	0	4	60	24	20	10	10	40	16		1					1			100	40	Theory+Internal
64		17040614	Security Documents and its Examination Lab	Practical	DSE	0	0	-4	2	1816					100		20 20) 40	16	10	10	10	30	60	24		40	Practical +Internal
65	1	17040615	Instrumentation in Questioned Documents	Theory	DSE	4	0	0	4	60	24	20	10	10	40			1			1					100	40	Theory+Internal
66		17040616	Instrumentation in Questioned Documents Lab	Practical	DSE	0	0	4	2								20 20) 40	16	10	10	10	30	60	24	100	40	Practical +Internal
67	· . [17040617	Network Forensics	Theory	DSE -	4	0	0	4	60	24	20	10	10	40	16				10.0	1.2.2	1				100	40	Theory+Internal
68		17040618	Network Forensics Lab	Practical	DSE	0	0	4	2								20 20) 40	16	10	10	10	30	60	24		40	Practical +Internal
69	Γ	17040619	Data acquisition and Cloud Forensics	Theory	DSE	4	0	0	4	60	24	20	10	10	40			1	-	1			1			100	40	Theory+Internal
70		17040620	Data acquisition and Cloud Forensics Lab	Practical	DSE	0	0	4	2					1			20 20) 40	16	10	10	10	30	60	24	100	40	Practical +Internal
-	1.1											-			1													
71		17040701	Forensic Medicine	Theory	DSE	4			4	60	24	20	10	10	40				1		1			100		100	40	Theory+Internal
72		17040702	Forensic Medicine Lab	Practical	DSE	0			2								20 20	40	16	10	10	10	30	60	24		40	Practical +Internal
73		17040703	Research Methodology and Statistics	Theory	DSE	4				60	24	20	10	10	40	16										100	40	Theory+Internal
74		17040704	Research Methodology and Statistics Lab	Practical	DSE	0		4	2			136					20 20	40	16	10	10	10	30	60	24		40	Practical +Internal
	I/IV	17040705	Ecology and Biodiversity	Theory	DSE	4	-		4	60	24	20	10	10	40						- 1	1	1.1			100	40	Theory+Internal
76		17040706	Ecology and Biodiversity-Lab	Practical	DSE	0			2					1.20			20 20	40	16	10	10	10	30	60	24	100	40	Practical +Internal
77		17040707	Air and Noise Pollution	Theory	DSE	4	-	-		60	24	20	10	10	40						1.11	1.		1.		100	40	Theory+Internal
78		17040708	Air and Noise Pollution-Lab	Practical	DSE	0			2			-					20 20									100	40	Practical+Internal
79		17040709	Project-I	Practical	DSE	0	0	8	8				12	1.1		1	40 40	80	32	20	20	20	60	120	48	200	80	Practical +Internal
					1													-	-						_		-	
80		17040801	Forensic Engineering	Theory	DSE	4		-	4	60	24	20	10	10	40		-			-						100	40	Theory+Internal
81		17040802	Forensic Engineering Lab	Practical	DSE	0		4	2		-						20 20	40	16	10	10	10	30	60	24		40	Practical +Internal
82		17040803	Analytical Laboratory Techniques and Quality Management	Theory	DSE	4			4	60	24	20	10	10	40			-						100		100	40	Theory+Internal
83		17040804	Analytical Laboratory Techniques and Quality Management Lab	Practical	DSE	0			2								20 20	40	16	10	10	10	30	60	24	100	40	Practical +Internal
		17040805	Soil and water Pollution	Theory	DSE	4				60	24	20	10	10	40											100	40	Theory+Internal
85	-	17040806	Soil and water Pollution-Lab	Practical	DSE	0	-		2								20 20	40	16	10	10	10	30	60	24	100	40	Practical +Internal
86		17040807	EIA and Sustainable development	Theory	DSE	4	0		4	60	24	20	10	10	40			-								100	40	Theory+Internal
87		17040808	EIA and Sustainable developmen-Lab	Practical	DSE	0			2		1.1						20 20									100	40	Practical +Internal
88		17040809	Project-II	Practical	DSE	0	0	8	8						1.00		40 40	0 80	32	20	20	20	60	120	48	200	80	Practical +Internal

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			B.Sc. (H	I) Fore	ensic Sci	ence				
		Program Structu				dit System CBCS	5 2020-23			
emester	Course Code	Course Name	Cour	se struct	ture	Contact	Credits	Max	Formative	Summative
			L	T	Р	hours/ week	creatis	Marks	Assessment	Assessmen
				SE	MESTER	-I				
				_		ory Course (AEC				1
	AECC01001	English	2	. 0	0	2	2	50	20	30
	17040101			1 1	Courses (1 ´				
	17040101	Introduction to Forensic Science	4	0	0	4	4	100	40	60
	17040102	Introduction to Forensic Science Practical Lab	0	0	4	4	2	100	60	40
	17040103	Crime Scene Investigation	4	0	0	4	4	100	40	60
Ι	17040104	Crime Scene Investigation Lab	0	0	4	4	2	100	60	40
			Skil	l enhanc	ement cou	rse (SEC)			and the second	
	17040105	Technological Methods in Forensic Science	4	0	0	4	4	100	40	60
			Multidisc	iplinary	General H	Elective (MGE)	×			
	4.	MGE-1	4	0	0	4	4	100	40	60
				alue Add	ed Course	e (VAC)				
	TOTAL	VAC-1	2	0	0	2	2	50	20	30
	TOTAL CREDITS		16	0	8	28	24	600	320	380
					IESTER-					
	150001000					ory Course (AEC				
	AECC01002	Environmental Science	2	0	0	2	2	50	20	30
	17040201	Questioned Document Examination	4	0	Courses (C	4	4	100	40	(0)
	17040201	Questioned Document Examination Lab	4 0	0	4	4	4	100	<u>40</u> 60	60 40
	17040203	Fingerprints and other Impression Evidence	4	0	0	4	4	100	40	60
П	17040204	Fingerprints and other Impression Evidence Lab	0	0	4	4	2	100	60	40

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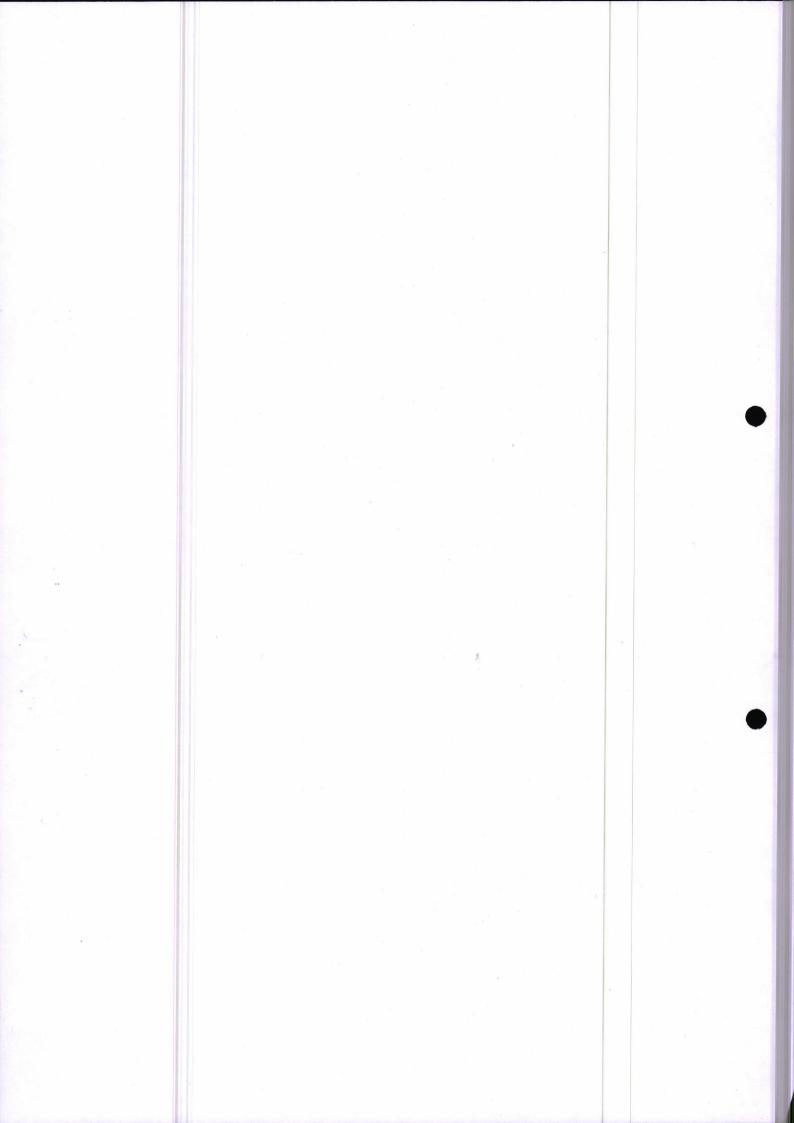
			Ski	ll enhance	ement cour	se (SEC)				
	17040205	Proactive and Reactive Forensics	4	0.	0	4	4	100	40	60
			Multidise	ciplinary	General El	ective (MGE))			
		MGE-2	4	0	0	4	4	100	40	60
				alue Add	ed Course	(VAC)				- • . 7 S .
		VAC-2	2.	0	0	2	2	50	20	30
	TOTAL CREDITS		16	0	8	28	24	600	320	380
1	CREDITS			SEN	IESTER-II	T				
		Δ	hility Enha		and the second sec	y Course (AE	CC)			
	AECC01003	Human Values and Ethics	2		0	2	$\frac{cc}{2}$	50	20	30
					Courses (C			50	20	50
	17040301	Forensic Accounting	4	0	0	4	4	100	40	60
	17040302	Forensic Accounting Lab	0	0	4	4	2	100	60	40
	17040303	Crime Scene Ethics and Evidence Management	4	0	0	4	4	100	40	60
ш	17040304	Crime Scene Ethics and Evidence Management Lab	0	0	4	4	2	100	60	40
	17040305	Accidental Investigation	4	0	0	4	4	100	40	60
	17040306	Accidental Investigation Lab	0	0	4	4	2	100	60	40
			Multidisc	iplinary	General El	ective (MGE)				
		MGE-1	4	0	0	4	4	100	40	60
			V	alue Add	ed Course	(VAC)				
		VAC-1	2	0	0	2	2	50	20	30
	TOTAL CREDITS		20	0	12	32	26	800	380	420
				SEN	IESTER-IN	/		I		
			bility Enhan	ncement	Compulsor	y Course (AE	CC)		1	
	AECC01004	Soft Skills	2	0	0	2	2	50	20	30
				Core (Courses (CO	C)				
	17040401	Smart Device Forensics	4	0	0	4	4	100	40	60
	17040402	Smart Device Forensics Lab	0	0	4	4	2	100	60	40
	17040403	Photography and its Forensic Significance	4	0	0	4	4	100	40	60
V	17040404	Photography Lab	0	0	4	4	2	100	60	40
	17040405	Psychology and Criminology	4	0	0	4	4	100	40	60
	17040406	Psychology and Criminology Lab	0	0	4	4	2	100	60	40

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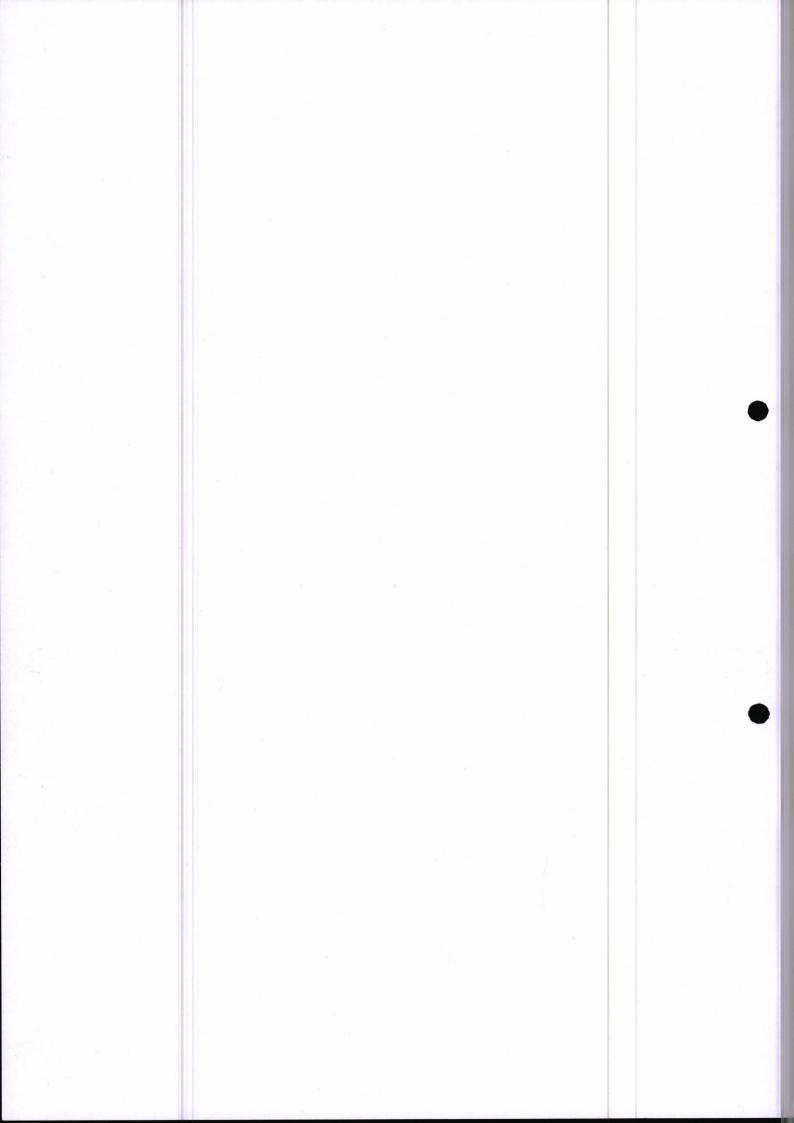
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					lective (MGE)	1			
	MGE-1	4	0	0	4	4	100	40	60
			alue Add	led Course	<u>`</u>	2 2 - C			
	VAC-1	2	0	0	2	2	50	20	30
TOTAL CREDITS		20	0	12	32	26	800	380	420
				MESTER-			1 5 1 1 2 1		
			Core	Courses (C	CC)				
17040501	Adulteration in Edible Items	4	0	0	4	4	100	40	60
17040502	Adulteration in Edible Items Lab	0	0	4	4	2	100	60	40
17040503	Forensic Ballistics	4	0	0	4	4	100	40	60
17040504	Forensic Ballistics Lab	0	0	4	4	2	100	60	40
		Disc	ipline Sp	ecific Elec	tive (DSE)		d she ki ti ba	and a start of the start	
17040505	Forensic Biology	4	0	0	4	4	100	40	60
17040506	Forensic Biology Lab	0	0	4	4	2	100	60	40
17040507	Forensic Serology	4	0	0	4	4	100	40	60
17040508	Forensic Serology Lab	0	0	4	4	2	100	60	40
17040509	Forensic Chemistry	4	0	0	4	4	100	40	60
17040510	Forensic Chemistry Lab	0	0	4	4	2	100	60	40
17040511	Forensic Toxicology	4	0	0	4	4	100	40	60
17040512	Forensic Toxicology Lab	0	0	4	4	2	100	60	40
17040513	Advanced Questioned Document Examination	4	0	0	4	4	100	40	60
17040514	Advanced Questioned Document Examination Lab	0	0	4	4	2	100	60	40
17040515	Advanced Fingerprint and Other impression Evidence	4	0	0	4	4	100	40	60
17040516	Advanced Fingerprint and Other impression Evidence Lab	0	0	4	4	2	100	60	40
17040517	Introduction to Computer Forensics	4	0	0	4	4	100	40	60
17040518	Introduction to Computer Forensics Lab	0	0	4	4	2	100	60	40
17040519	Cyber Security and Data Protection	4	0	0	4	4	100	40	60
17040520	Cyber Security and Data Protection Lab	0	0	4	4	2	100	60	40

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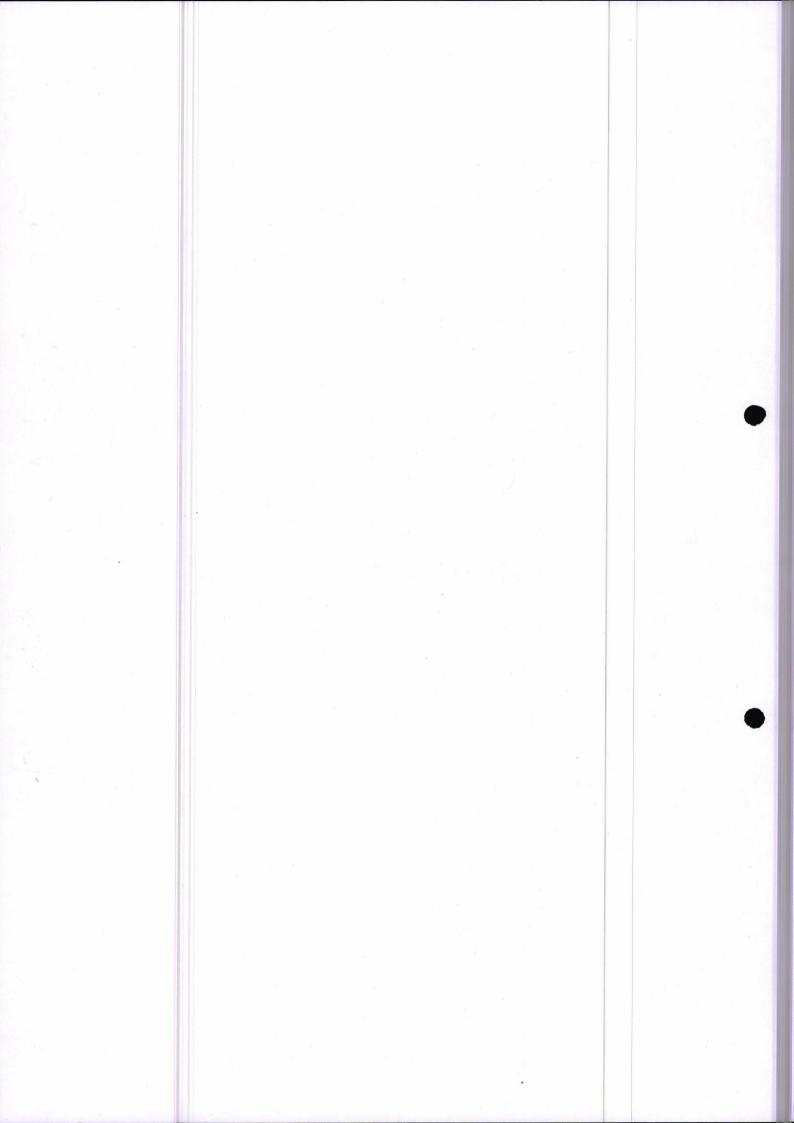
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TOTAI CREDIT		20	0	12	32	26	800	380	420
Childre			SEN	IESTER-V	/I				
			Core	Courses (C	C)	Carlo Maria			
1704060	01 Forensic Odontology	4	0	0	4	4	100	40	60
1704060	D2 Forensic Odontology Lab	0	0	4	4	2	100	60	40
1704060	03 Forensic Anthropology	4	0	0	4	4	100	40	60
1704060	04 Forensic Anthropology Lab	0	0	4	4	2	100	60	40
		Disc	ipline Sp	ecific Elect	tive (DSE)				
1704060	Forensic Genetics and DNA Profiling	4	0	0	4	4	100	40	60
1704060	Forensic Genetics and DNA Profiling Lab	0	0	4	4	2	100	60	40
170406	07 Bioinformatics	4	0	0	4	4	100	40	60
170406	08 Bioinformatics Lab	0	0	4	4	2	100	60	40
170406	Pharmacokinetics and Pharmacology	4	0	0	4	4	100	40	60
170406	Pharmacokinetics and Pharmacology 10 Lab	0	0	4	4	2	100	60	40
170406	11 Instrumentation in Chemical Sciences	4	0	0	4	4	100	40	60
170406	Instrumentation in Chemical Sciences Lab	0	0	4	4	2	100	60	40
170406	Security Documents and its Examination	4	0	0	4	4	100	40	60
170406	Security Documents and its Examination Lab	0	0	4	4	2	100	60	40
170406	Instrumentation in Questioned15Documents	4	0	0	4	4	100	40	60
170406	Instrumentation in Questioned Documents Lab	0	0	4	4	2	100	60	40
170406	17 Network Forensics	4	0.	0	4	4	100	40	60
170406	18 Network Forensics Lab	0	0	4	4	2	100	60	40
1704061	Data acquisition and Cloud Forensics	4	0	0	4	4	100	40	60
1704062	Data acquisition and Cloud Forensics Lab	0	0	4	4	2	100	60	40

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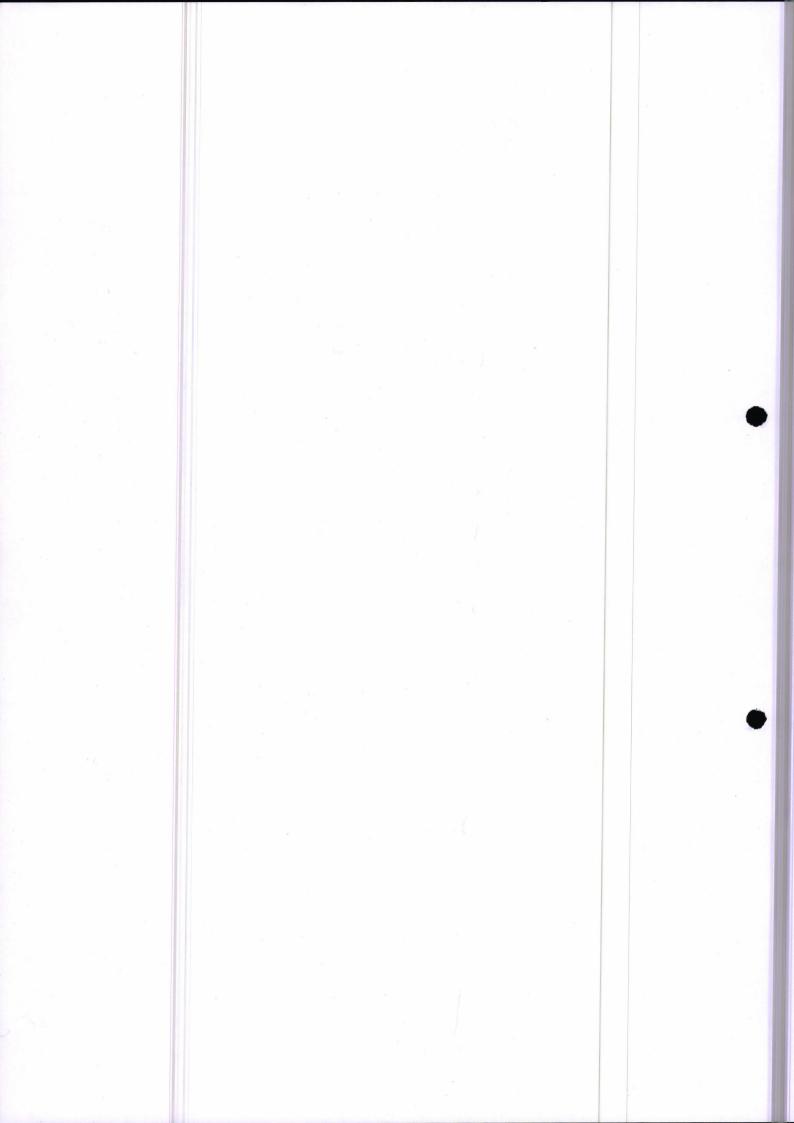
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SEMESTER-VII	
Discipline Specific Elective (DSE)	4
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Statistics 4 0 0 4 4	100 40 60
Statistics 0 0 4 4 2	100 60 40
4 0 0 4 4	100 40 60
ab 0 0 4 4 2	100 60 40
4 0 0 4 4	100 40 60
0 0 4 4 2	100 60 40
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	000 520 480
SEMESTER-VII Discipline Specific Elective (DSE)	
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VII

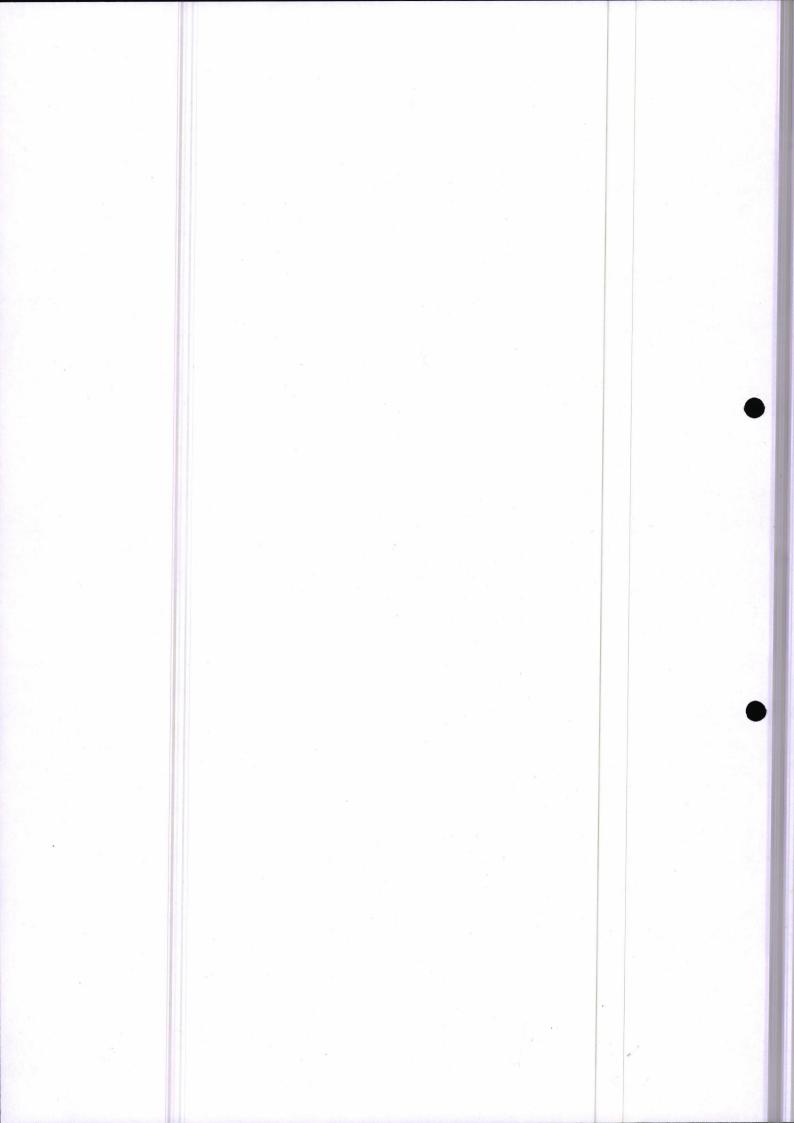
VIII



SEMESTER I

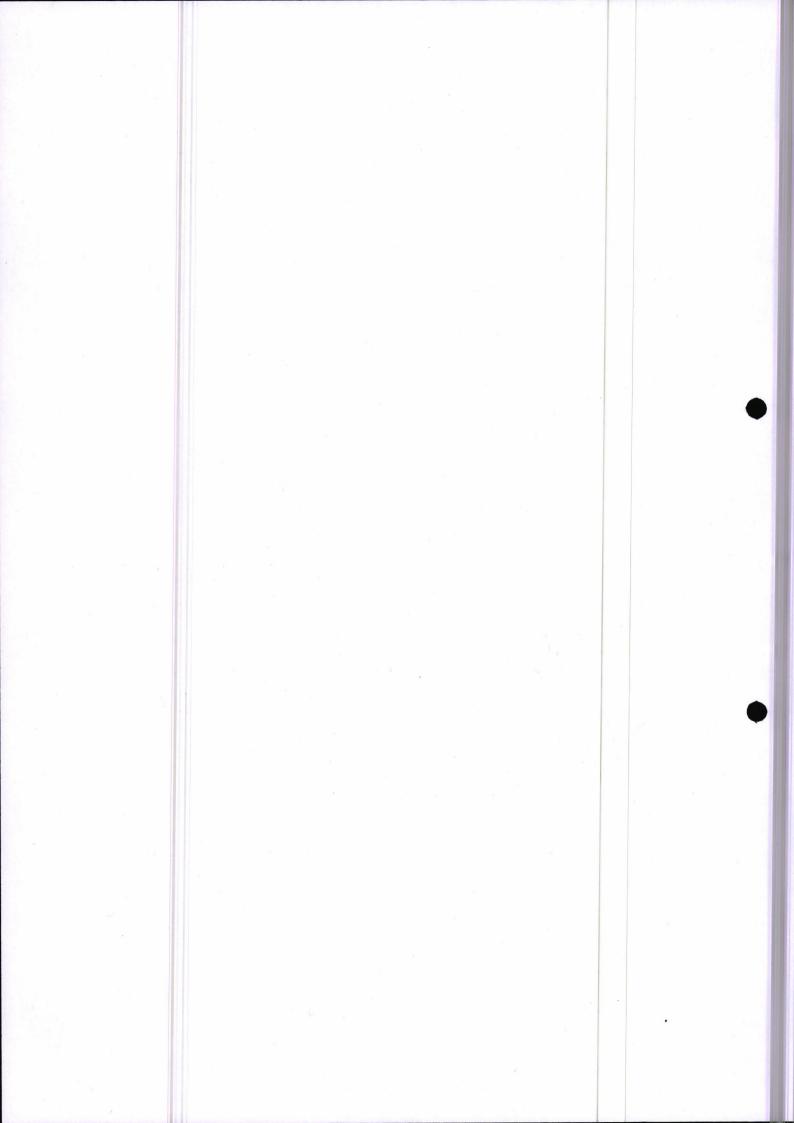
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with Science h. s, Tutorials, Pra will be able to known and organization em. anding of scope anding on historic vledge about different anizational setup to of this course, the basic principles a bot of expert witne organizational setup	6. Frequency (use tick marks) actical Tutorials = 0 ow about the base ow about the base al setup in for of Forensic Sc ical development cerent divisions of forensic lal e student will base and history of less and report of torensic	Even () Even () 00 asic knowl rensic scie iences. ent of Fore in a foren poratory in be able to: Forensic scie writing wit c science 1	Odd(✓) Practical edge of fore nce. The stu nsic Science sic science India cience in Indi aboratories.	Either Sem () = 00 ensic science udents will re, mobile f laboratory. dia and wo stice system.	Every Sem () Every Sem () ces, its principles l also understand forensic units and orldwide. m.
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will be able to known and organization em. anding of scope anding on historic vledge about diffe anizational setup to f this course, the basic principles a bot of expert withe organizational setup	actical Tutorials = ow about the bal oal setup in for of Forensic Sc ical developme erent divisions of forensic lal e student will band history of less and report et up of forensic	asic knowl rensic scie iences. ent of Fore in a foren poratory in be able to: Forensic so writing wit c science l	edge of fore nce. The str nsic Science sic science India	ensic scienc udents will e, mobile f laboratory. dia and wo stice syster	l also understand forensic units and orldwide. m.
will be able to known and organization em. anding of scope anding on historic vledge about diffe anizational setup to f this course, the basic principles a bot of expert withe organizational setup	Tutorials = 0 ow about the bal al setup in for of Forensic Sc ical developme erent divisions of forensic lal e student will b and history of l ess and report of torensic	asic knowl rensic scie iences. ent of Fore in a foren poratory in be able to: Forensic so writing wit c science l	edge of fore nce. The str nsic Science sic science India	ensic scienc udents will e, mobile f laboratory. dia and wo stice syster	l also understand forensic units and orldwide. m.
and organization em. anding of scope anding on histori vledge about diffe anizational setup tof this course, the basic principles a of of expert withe organizational se	ow about the bal al setup in for of Forensic Sc ical developme erent divisions of forensic lal estudent will b and history of l ess and report of forensi	asic knowl rensic scie iences. ent of Fore in a foren poratory in be able to: Forensic so writing wit c science l	edge of fore nce. The str nsic Science sic science India	ensic scienc udents will e, mobile f laboratory. dia and wo stice syster	l also understand forensic units and orldwide. m.
and organization em. anding of scope anding on histori vledge about diffe anizational setup tof this course, the basic principles a of of expert withe organizational se	of Forensic Sc ical developme erent divisions of forensic lal estudent will b and history of l ess and report et up of forensi	iences. ent of Fore oratory in be able to: Forensic so writing wit c science 1	nce. The stu nsic Science sic science India	udents will e, mobile f laboratory. dia and wo stice syster.	l also understand forensic units and orldwide. m.
anding on histori vledge about diffe anizational setup tof this course, the basic principles a bot of expert withe organizational se	ical developme erent divisions of forensic lal e student will b and history of l ess and report et up of forensi	ent of Fore in a foren poratory in pe able to: Forensic so writing wit c science l	sic science India cience in Ind th Indian jus aboratories.	laboratory. dia and wo stice syster	orldwide. n.
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nt			1	1. A. C.	
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er of lectures	Title of the	unit: H	istory and	Developm	nent of Forensic
Historical acros	Science	antuilantia	na in fanan		. Definitions and
Scope and need	of forensic sc	ience. Bas	sic principle	es of forens	sic science. Frye
Functions of fo	prensic science	Forensia	science in	internation	nal parapativas
rensic scientists	and investigat	ing officer	Emerging	areas in Fo	orensic Science
orensic science Documents, Bureau, Police	laboratories a	and their Fin tive Trai	services. C gerprint ning Scho	Governmen ools, Bure	Bureaus eau of Police
b f	E Functions of for orensic scientists ber of lectures Central For forensic science Documents, Bureau, Polic	E. Functions of forensic science prensic scientists and investigat ber of lectures Central Forensic Science forensic science laboratories Documents, Bureau, Police & Detect	E. Functions of forensic science. Forensic prensic scientists and investigating officer Der of lectures Title of the unit: Orga Laboratories in India Central Forensic Science Laboratories and their Documents, Fin Bureau, Police & Detective Train	 Functions of forensic science. Forensic science in orensic scientists and investigating officer. Emerging ber of lectures Title of the unit: Organizational Laboratories in India I Central Forensic Science Laboratories, forensic science laboratories and their services. O Documents, Fingerprint Bureau, Police & Detective Training School 	 Functions of forensic science. Forensic science in internation or ensic scientists and investigating officer. Emerging areas in Forensic science and investigating officer. Emerging areas in Forensic science and the services of the unit: Organizational set up of a set u

Y



Unit -	4Number of lectures = 13Title of the unit: Organizational set up of Forensic Science Laboratories in India II
	nal Procedure Code and Indian Penal code. Cognizable and non-cognizable offences. Bailable and non-
bailab	le offences. Indian Evidence Act – Evidence and rules of relevancy in brief. Expert witness. Cross
	nation and re-examination of witnesses, report writing
	rief Description of self-learning / E-learning component
1.	
	https://www.youtube.com/watch?v=OIjkZXfFBgI
5. 4.	https://www.youtube.com/watch?v=7NFCOH2GSRw https://www.youtube.com/watch?v=a4dwypa12c4
ч. 5.	https://www.youtube.com/watch?v=KE_E128mHQo
	https://www.youtube.com/watch?v= YjcI3nXOKA
	books Recommended
 2. 3. 4. 5. 6. 	Houck, M.M. & Siegel, JA; Fundamentals of Forensic Science, Academic Press, London, 2006. Sharma, B.R., Forensic Science in Criminal Investigation & Trials, Universal Publishing Co., New Delhi, 2003 Nanda B.B and Tiwari, R.K. Forensic Science in India- A vision for the Twenty First Century, Select publisher, Delhi, 2001. James, SH and Nordby, J.J., Forensic Science- An Introduction to Scientific and investigative Techniques, CRC Press, USA (2003) Saferstein; Criminalistics- An Introduction of Forensic Science, Prentice Hall Inc, USA, 2007. Sharma, B.R. (1974) Forensic Science in Criminal Investigation and Trials, Central Law Agency, Allahabad, 1974. Indian Evidence Act Criminal Procedure code.
•	L Ast Athe Ville

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1. Name of the De	epartment: For	rensic Science				
2. Course Name	Introduction t	o Forensic Sci	ence Lab	L	Τ	P
3. Course Code	17040102			0	0	4
4. Type of Cour	rse (use tick	Core (✓)	DSE ()	AEC ()	SEC ()	OE ()
mark)						
5. Pre-requisite	10+2 with	6.	Even ()	$Odd(\checkmark)$	Either	Every Sem ()
(if any)	Science	Frequency			Sem ()	
	stream.	(use tick				
		marks)				
7. Total Number	of Lectures, T	utorials, Pract	ticals			
Lectures = 00		Tutorials = ()0	Practical =	= 52	

Lectures = 008. Course Description

In the core paper of forensic science laboratory, the students will learn various case studies where forensic science has been applied successfully. They will also study the organisational setup of forensic lab and other related laboratories.

9. Course Objectives

- 1. To study the organisational setup of forensic science lab.
- 2. To study the annual crime data as per NCB and CFB
- 3. To observe case studies pertaining to different crimes in the country.
- 4. To prepare comprehensive report of the crime data

10. Course Outcomes (COs):

Upon successful completion of this course, the students will able to

- 1. Cite examples of crime cases and study the history of crime cases from forensic science perspective
- 2. Study the annual reports of National Crime Records Bureau and depict the data
- 3. Review the Central Fingerprint Bureau coordinates and prepare reports on different types of criminal cases.
- 4. Learn and apply the practical knowledge of mobile forensic units.

11. Unit wise detailed content

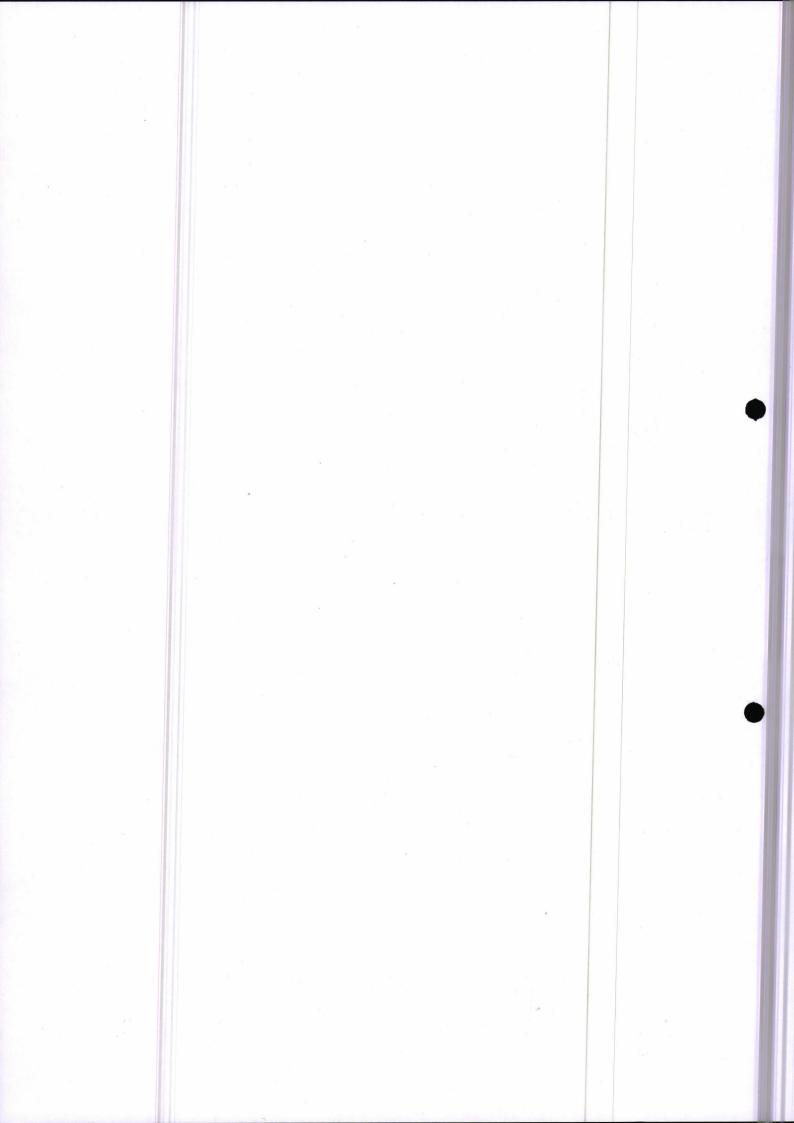
Practicals

- 1. To study the history of crime cases from a forensic science perspective.
- 2. To cite examples of crime cases in which apprehensions arose because of Daubert standards.
- 3. To review the sections of forensic science at INTERPOL and compare with those in Central Forensic Science Laboratories in India. Include suggestions for improvements if any.
- 4. To study the annual reports of the National Crime Records Bureau and depict the data on different types of crime cases by way of smart art/templates.
- 5. To write reports on different types of crime cases.
- 6. To review how the Central Fingerprint Bureau, New Delhi, coordinates the working of State Fingerprint Bureaus.
- 7. To examine the hierarchical set up of different forensic science establishments and suggest improvements.
- 8. To examine the list of projects undertaken by the Bureau of Police Research and Development and suggest the thrust areas of research in Police Science.
- 9. To compare and contrast the role of a Police Academy and a Police Training School.
- 10. To compare the code of conduct prescribed by different establishments for forensic scientists

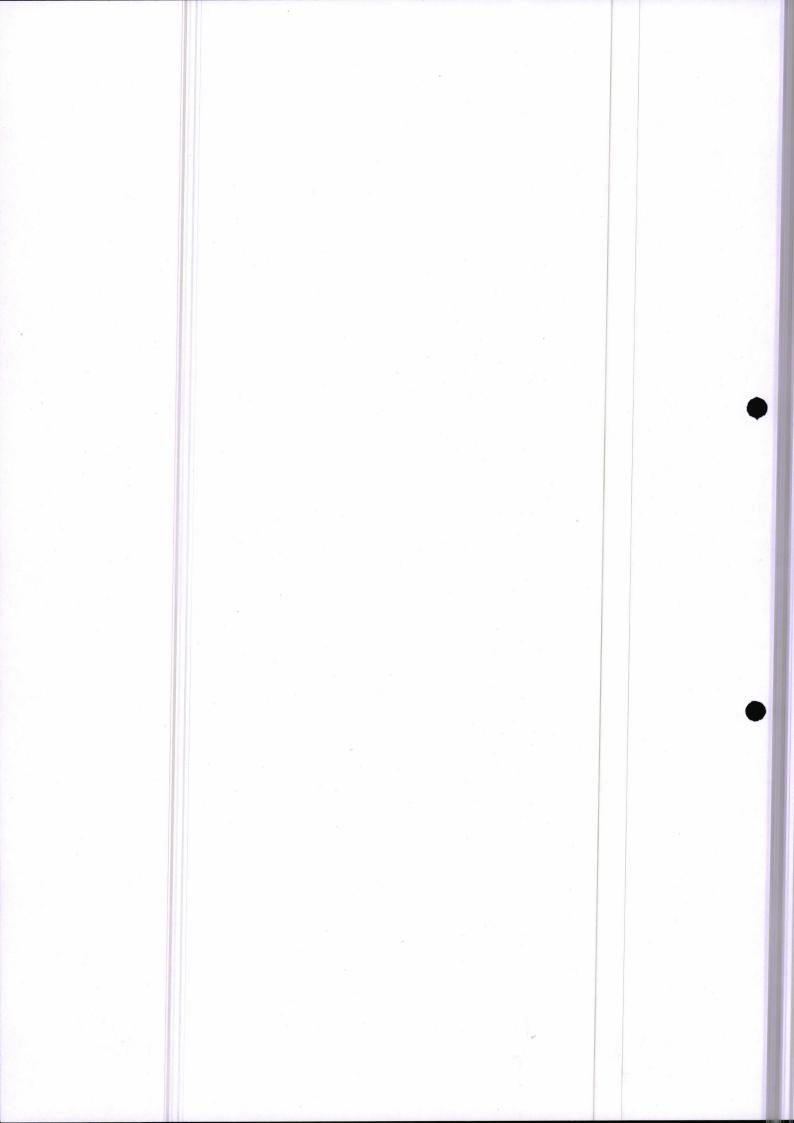
12. Books Recommended

1. DFS Manuals of Forensic Science

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1. Name of the De	partment: Foren	sic Sciences		·		
2. Course Name	Crime Scene Inv			L	Τ	P
3. Course Code	17040103			4	0	0
4. Type of Course	(use tick mark)	Core (✓)	DSE ()	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream	6. Frequency (use tick marks)	Even ()	Odd (✓)	Either Sem ()	Every Sem ()
7. Total Number	of Lectures, Tuto	orials, Practicals				
Lectures = 52		Tutorials = 00		Practical	= 00	
8. Course Descrip						
This core paper des	cribes the basic ki	nowledge of the crin	ne scene man	agement, invo	estigation, a	nd reconstruction.
		ation of crime scene	e and maintai	ining the chai	n of custod	у.
9. Course Objecti						
The course emphase						
1. To Develop	an understanding	g of types of crime s	scenes and cr	ime scene inv	vestigation t	echniques.
	o an understandin	ig on collection and	d preservatio	n of differen	t types of p	physical and trace
evidence.						
		chain of custody an				
		countered evidence	s at the scene	e of crime an	id various t	echniques used to
analyse the 10. Course Outco		7			·	
		course, the student w				
		ecuring, searching a				
		f collecting, packag	ing and prese	erving differe	ent types of	physical and trace
	crime scenes.	1 .11	1			
3. Develop ett	nical and scientific	c skills to maintain	chain of custo	ody		
4. Gain analy	tical skills to use	the tools and tech	iniques for a	nalysis of di	fferent type	es of crime scene
evidence. 11. Unit wise deta	iled content					
Unit-1		Title of the unit	Cuima Carro	T		
Unit-1	Number of lectures = 13	Title of the unit-	Crime Scene	investigatio	n	
Defining Crime Sc		me scenes – indoor	and outdoor	Concept of	nrimary and	l secondary crime
		rime scene, Crime				
measures at crime	scenes. Legal cons	siderations at crime	scenes. Doci	imentation of	^c crime scen	$e_s - photography$
videography, sketc	hing and recordin	g notes. Duties of	first responde	ers at crime s	cenes. Coo	rdination between
police personnel ar	nd forensic scienti	ists at crime scenes.	The evaluat	ion of 5Ws (who? what	when? where?
why?) and 1 H (hor				(inter, inter	.,,,
Unit – 2	Number of	0	Crime Scene	Evidence		
	lectures = 13					
Classification of cr	ime scene evidenc	e-physical, testime	onial, and circ	cumstantial. L	locard's prin	nciple. Collection.
labeling, sealing of	evidence. Hazard	lous evidence. Prese	ervation of ev	vidence. Chai	n of custody	y.
Unit – 3		Title of the unit-				
	lectures = 13			U		
Crime Scene Mar	nagement: Conce	pt and procedure,	Crime Scen	ne Reconstru	ction: Proc	edure, steps and
requirement for R	econstruction; Gu	uidance from field	notes, and	documentatio	n; Modus	operandi, role of
Investigating Offic	er.					
Unit – 4	Number of lectures = 13	Title of the uni common evidence		g, preservat	ion and b	orief analysis of
`	Job 9	r lærge	in P	John .	Y.	Bitz



Glass evidence – collection, packaging, analysis. Matching of glass samples by mechanical fit and refractive index measurements. Analysis by spectroscopic methods. Fracture analysis and direction of impact.

Paint evidence – collection, packaging and preservation. Analysis by destructive and non-destructive methods. Importance of paint evidence in hit and run cases.

Soil evidence – importance, location, collection and comparison of soil samples.

Cloth evidence – importance, collection, analysis of adhering material. Matching of pieces. Tool mark evidence. Classification of tool marks. Forensic importance of tool marks. Collection, preservation and matching of tool marks. Restoration of erased serial numbers and engraved marks. Forensic gemology.

12. Brief Description of self-learning / E-learning component

- 1. https://www.youtube.com/watch?v=rl_Zsk3HjdI
- 2. https://www.youtube.com/watch?v=ex4FaIaOjIA
- 3. <u>https://www.youtube.com/watch?v=A_CSjKrSeUY</u>
- 4. <u>https://www.youtube.com/watch?v=v5cJOWR9CP8</u>
- 5. https://www.youtube.com/watch?v=FJWaUZvTXdA&t=1100s
- 6. <u>https://www.youtube.com/watch?v=ccXGS5z51nQ</u>

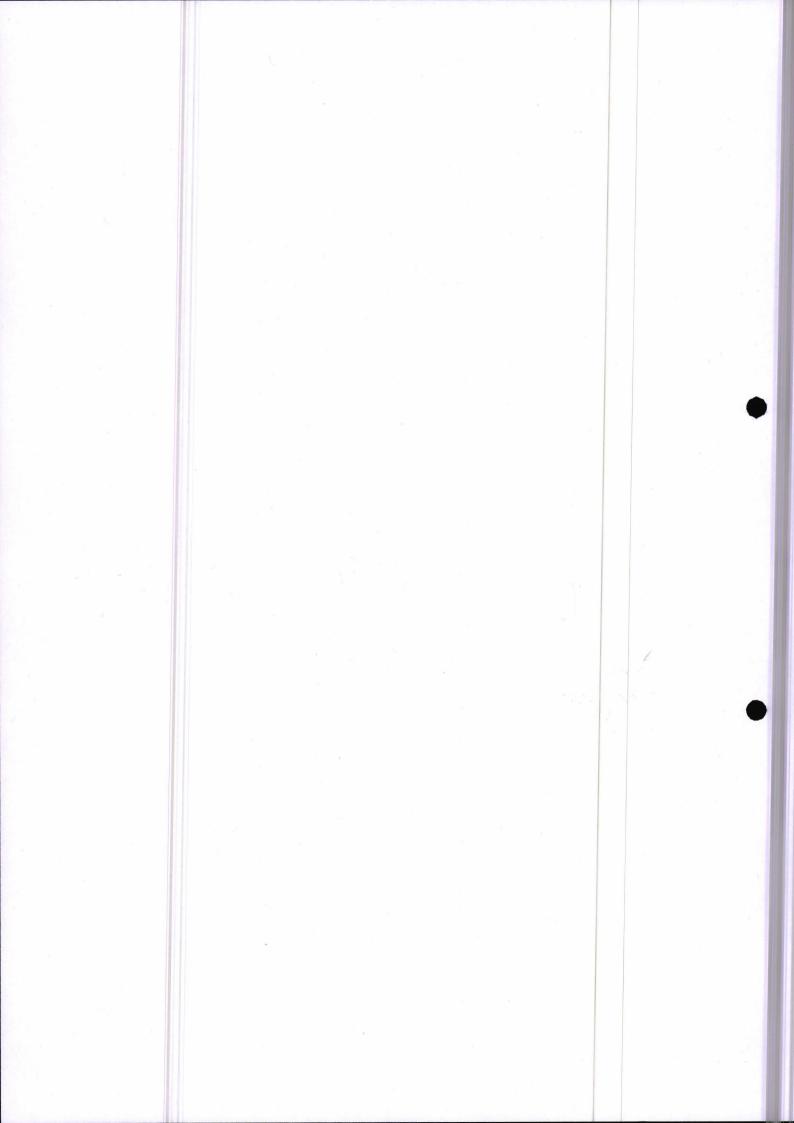
13. Books Recommended

- 1. M. Byrd, *Crime Scene Evidence: A Guide to the Recovery and Collection of Physical Evidence*, CRC Press, Boca Raton(2001).
- 2. T.J. Gardener and T.M. Anderson, Criminal Evidence, 4+Ed., Wadsworth, Belmont (2001).
- 3. S.H. James and J.J. Nordby, *Forensic Science: An Introduction to Scientific and Investigative Techniques*, 2ndEdition, CRC Press, Boca Raton(2005).

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4. W.J. Tilstone, M.L. Hastrup and C. Hald, Fisher's, *Techniques of Crime Scene Investigation*, CRC Press, Boca Raton(2010).

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	Crime Scene Investigation	Lab		L	Τ	P
3. Course Code	17040104			0	0	4
4. Type of Course	(use tick mark)	Core (✓)	DSE ()	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10 +2 with science stream	6. Frequency (use tick marks)	Even ()	Odd(√)	Either Sem ()	Every Sem ()
7. Total Number of	of Lectures, Tutorials, Pract					
Lectures = 00		Tutorials =	00	Practical	= 52	
8. Course Descrip	tion:			1		
This laboratory cou	arse provides an opportunity t	o learn the art	of crime s	cene invest	igation, doc	cumentation, and
vidences.	is course also describes the a	inalyses proce	aures of e	examination	and compa	arison of certair
9. Course Objectiv	ves:					
J						
	to reconstruct the crime scer	ne.				
 Course Outcon Upon successful co Understand Relate their Utilize diffe Understand 	ompletion of this course, the s the methods to search differe scientific aptitude to various erent physical evidences to cre the criminal case and role of	tudents will be ent types of Cr evidences wit eate probable l	ime Scene h crime sc hypothesis	ene and wit	h particula	r crime.
 Course Outcon Upon successful con Understand Relate their Utilize different Understand Understand List of Practice To create provide 	mes (Cos): ompletion of this course, the s the methods to search differe scientific aptitude to various erent physical evidences to cre the criminal case and role of als obable hypothesis on the basis	tudents will be ent types of Cr evidences wit eate probable I the expert wit	ime Scene h crime sc hypothesis ness.	ene and wit	h particula	r crime.
 Course Outcon Upon successful conditional conditi conditional conditional conditatica conditional conditional co	mes (Cos): ompletion of this course, the s the methods to search differe scientific aptitude to various erent physical evidences to cre the criminal case and role of als obable hypothesis on the basis earch of the given crime scen	tudents will be ent types of Cr. evidences wit eate probable I the expert wit of the evidence e using variou	ime Scene h crime sc hypothesis ness. ce s searchin	ene and wit	h particula	r crime.
 10. Course Outcon Upon successful con 1. Understand 2. Relate their 3. Utilize different 4. Understand 11. List of Practica 1. To create pro 2. To conduct set 3. To understand 	mes (Cos): ompletion of this course, the s the methods to search differe scientific aptitude to various erent physical evidences to cre the criminal case and role of als obable hypothesis on the basis earch of the given crime scen d crime scene protection and	tudents will be ent types of Cr evidences wit eate probable I the expert wit of the evidence e using variou measurements	ime Scene h crime sc hypothesis ness. ce s searchin	ene and wit		r crime.
 Course Outcon Upon successful conditional in the stand Relate their Relate their Utilize differentiation of the stand Understand Understand List of Practical To create provide a standard of the standard standar	mes (Cos): ompletion of this course, the s the methods to search differe scientific aptitude to various erent physical evidences to cre the criminal case and role of als obable hypothesis on the basis earch of the given crime scene d crime scene protection and oh the given crime scene (Inde	tudents will be ent types of Cr evidences wit eate probable I the expert wit of the evidence using variou measurements por and outdoo	ime Scene h crime sc hypothesis ness. ce s searchin	ene and wit		r crime.
 10. Course Outcon Upon successful constraints 1. Understand 2. Relate their 3. Utilize different 4. Understand 11. List of Practica 1. To create prosens 2. To conduct sets 3. To understand 4. To photograph 5. To reconstruct 	mes (Cos): ompletion of this course, the s the methods to search differe scientific aptitude to various erent physical evidences to cre the criminal case and role of als obable hypothesis on the basis earch of the given crime scen d crime scene protection and	tudents will be ent types of Cr evidences wit eate probable I the expert wit of the evidence using variou measurements por and outdoo	ime Scene h crime sc hypothesis ness. ce s searchin	ene and wit		r crime.
 Course Outcon Upon successful conditional conditiconal conditional conditiona conditiona conditiona conditional	mes (Cos): ompletion of this course, the s the methods to search differe scientific aptitude to various erent physical evidences to cre the criminal case and role of als obable hypothesis on the basis earch of the given crime scene d crime scene protection and oh the given crime scene (Inde ct a crime scene (outdoor and nd compare tool marks. report on evaluation of crime	tudents will be ent types of Cr evidences wit eate probable I the expert wit of the evidence using variou measurements oor and outdoo indoor).	ime Scene h crime sc hypothesis ness. ce s searchin	ene and wit		r crime.
 Course Outcon Upon successful conditional in the stand Relate their Relate their Utilize differentiation of the stand Understand Understand Understand To create product set To conduct set To understand To photograp To identify and To prepare a 	mes (Cos): ompletion of this course, the s the methods to search differe scientific aptitude to various erent physical evidences to cre the criminal case and role of als obable hypothesis on the basis earch of the given crime scene d crime scene protection and oh the given crime scene (Inde ct a crime scene (outdoor and nd compare tool marks.	tudents will be ent types of Cr evidences wit eate probable I the expert wit of the evidence using variou measurements oor and outdoo indoor).	ime Scene h crime sc hypothesis ness. ce s searchin	ene and wit		r crime.
 Course Outcon Upon successful conditional in the stand Relate their Relate their Utilize different Utilize different Understand Understand List of Practice To create product set To conduct set To understand To photograph To identify and To prepare and To cite example 	mes (Cos): ompletion of this course, the s the methods to search differe scientific aptitude to various erent physical evidences to cre the criminal case and role of als obable hypothesis on the basis earch of the given crime scene d crime scene protection and oh the given crime scene (Inde ct a crime scene (outdoor and nd compare tool marks. report on evaluation of crime ple of a current criminal case.	tudents will be ent types of Cr evidences wit eate probable I the expert wit of the evidence using variou measurements oor and outdoo indoor).	ime Scene h crime sc hypothesis ness. ce s searchin	ene and wit		r crime.
 Course Outcon Upon successful conditional in the stand Relate their Relate their Utilize differentiation of the stand Understand Understand Understand To create product set To conduct set To understand To photograp To identify and To prepare a 	mes (Cos): ompletion of this course, the s the methods to search differe scientific aptitude to various erent physical evidences to cre the criminal case and role of als obable hypothesis on the basis earch of the given crime scene d crime scene protection and oh the given crime scene (Inde ct a crime scene (outdoor and nd compare tool marks. report on evaluation of crime ple of a current criminal case. nended	tudents will be ent types of Cr evidences wit eate probable I the expert wit of the evidence using variou measurements oor and outdoo indoor).	ime Scene h crime sc hypothesis ness. ce s searchin	ene and wit		r crime.



1. Name of the De	partment: Forensic Sciences	5				
2. Course Name	Technological Methods in Fo		e	L	Т	Р
3. Course Code	17040105			4	0	0
4. Type of Course	(use tick mark)	Core ()	DSE ()	GE ()	SEC (✓)	
5. Pre-requisite (if any)	10+2 with Science Stream	6. Frequency (use tick marks)	Even ()	Odd (√)	Either Sem ()	Every Sem ()
	of Lectures, Tutorials, Pract					
Lectures = 52		Tutorials =	00	Practical =	= 00	
8. Course Descrip						
In this core paper t	he student will be able to know	w about the mo	odern and	sophisticated	d instrument	s to examine
	c evidences and different aspe	cts of forensic	photograp	ohy.		
9.Course Objectiv						
	out the different chromatograp					
	and the basics of spectroscopy				les	
	out the principles, different ty					
	and the forensic application of	instrumental t	echniques			
10. Course Outcon	mes (COs):					
Upon successful co	ompletion of this course, the st	tudent will be a	able to:			
identifying 3. Develop sc evidence an		rials. d the significa amples.	nce of mi	croscopy in	visualizing	trace
Unit-1	Number of lectures=13	Title of the	unit- Inst	rumentation	1- I	
chromatography an Spectroscopic meth	nethods. Fundamental principled liquid chromatography. nods. Fundamental principles y, infrared spectroscopy, and a	es and forensic	c application r law) and	ons of thin la forensic app	yer chromate	
Unit-2	Number of lectures=13	Title of the	unit- Insti	rumentation	- II	
Neutron activation	r, mass spectroscopy, and elect analysis – fundamental princi	rophoresis – fu ples and forens	indamenta sic applica	l principles a tions.		applications.
Unit – 3	Number of lectures=13	Title of the	unit- Mici	roscopy		
Simple microscope	iples, concept of image format , compound microscope, stered scope (SEM, and TEM). Fore	o-microscope,	compariso	on microscop	used in forer be, polarized	nsic science- microscope,
Unit – 4	Number of lectures=13	Title of the	unit: For	ensic photog	graphy	
B	v l As	sh A	spa	J.	fat	0



Basic principles and applications of photography in forensic science. 3D photography. Photographic evidence. Infrared and ultraviolet photography. Digital photography. Videography. Crime scene and laboratory photography. DSLR Camera functions.

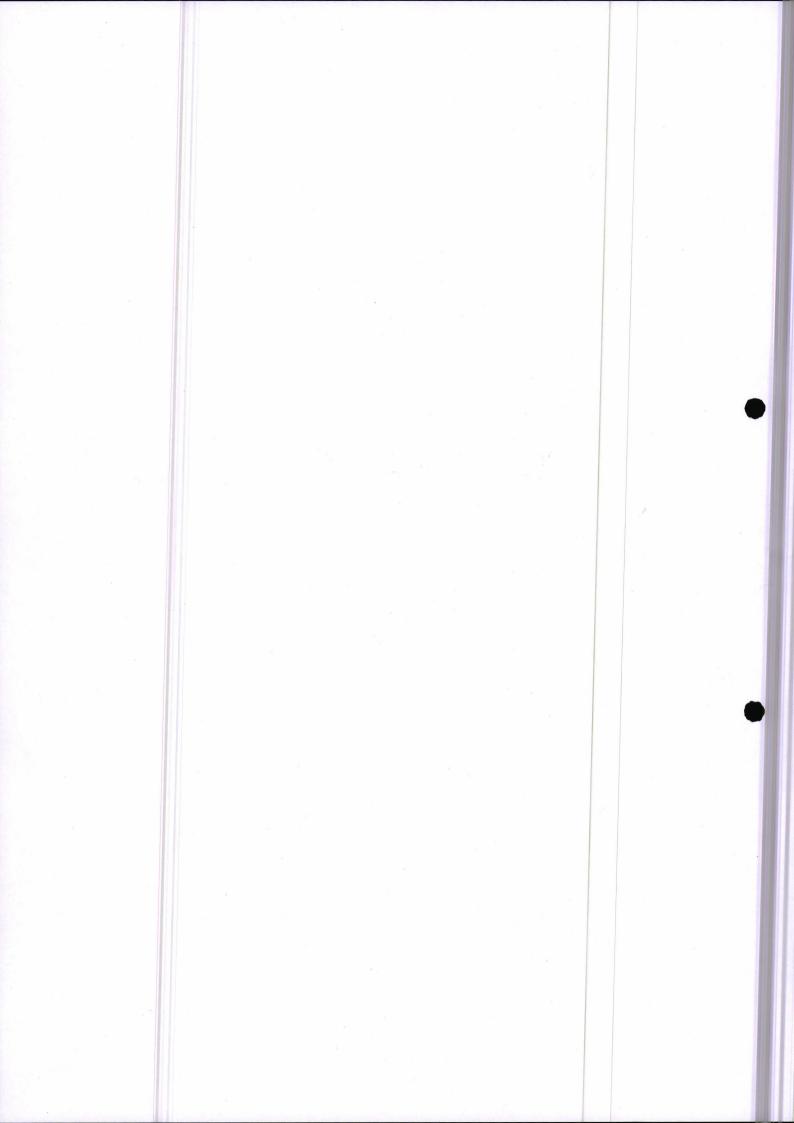
12. Brief Description of self-learning / E-learning component

- 1. https://www.youtube.com/watch?v=HFGRXL9Ihds
- 2. https://www.youtube.com/watch?v=KiOzQ-K0gEQ
- 3. https://www.youtube.com/watch?v=citMv0hvfyc
- 4. https://www.youtube.com/watch?v=CzQAtSXaKVs
- 5. https://www.youtube.com/watch?v=hRer5xSP2HQ
- 6. <u>https://www.youtube.com/watch?v=3bXFuccJqko</u>

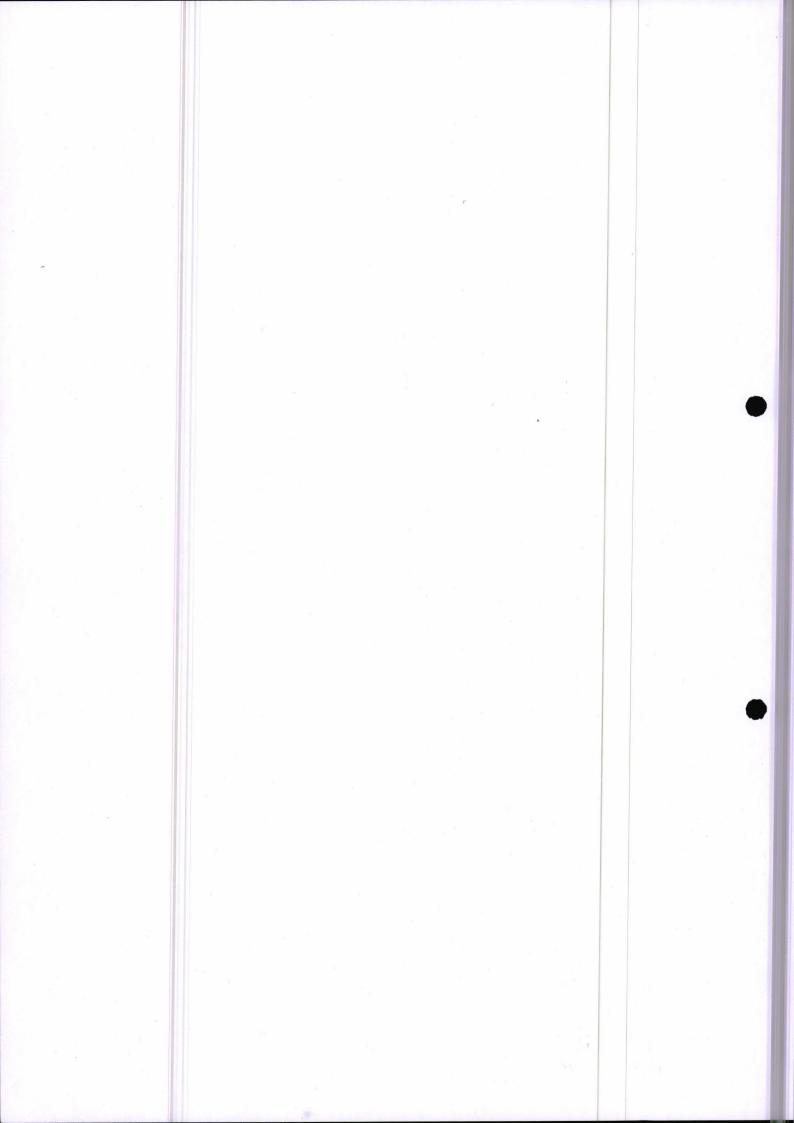
13. Books Recommended

- 1. D.A. Skoog, D.M. West and F.J. Holler, *Fundamentals of Analytical Chemistry*, 6thEdition, Saunders College Publishing, Fort Worth (1992).
- 2. W. Kemp, Organic Spectroscopy, 3rdEdition, Macmillan, Hampshire (1991).
- 3. J.W. Robinson, *Undergraduate Instrumental Analysis*, 5thEdition, Marcel Dekker, Inc., New York (1995).
- 4. 4. D.R. Redsicker, *The Practical Methodology of Forensic Photography*, 2ndEdition, CRC Press, Boca Raton(2000).

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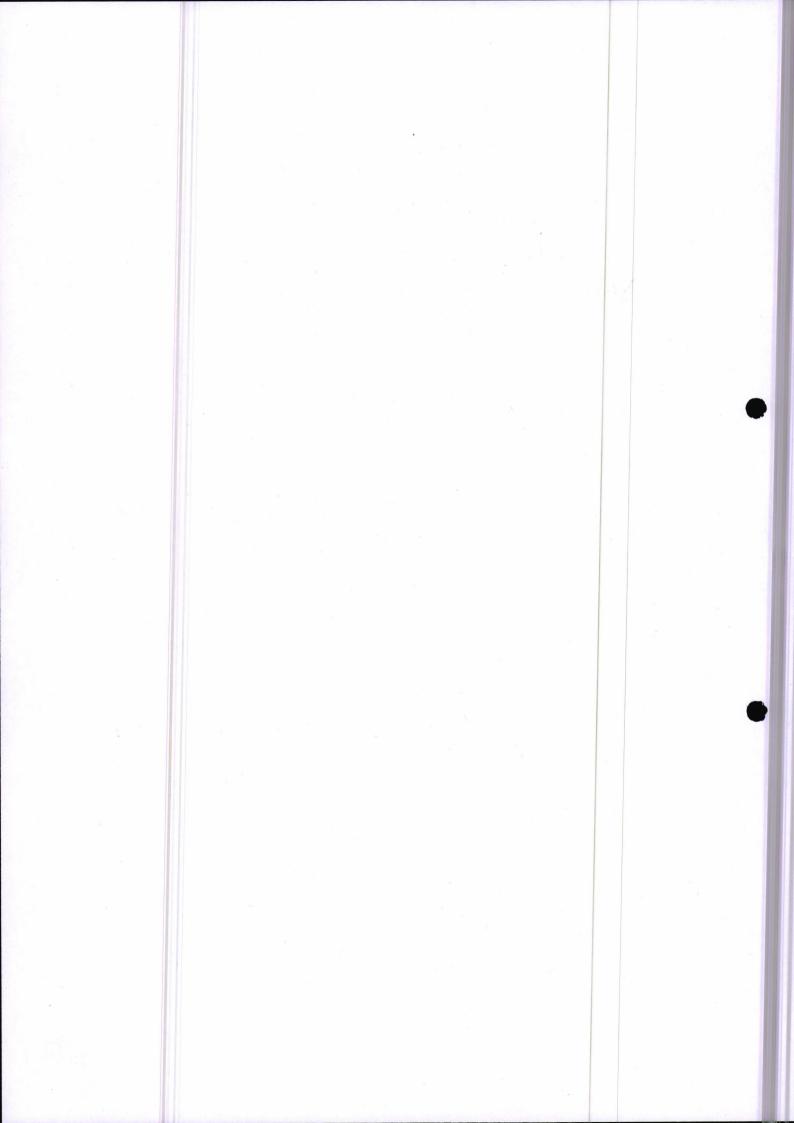
2. Course Name	English			L	Т	Р
3. Course Code	AECC01001			4	0	0
4.Type of Course		Core ()	DSE ()	GE ()	AEC (✓)	•
5. Pre-requisite	10+2 with Science	6.	Even	$Odd(\checkmark)$	Either Sem	Every
(if any)	stream	Frequency				Sem ()
(II ally)	Sucum	(use tick	0		0	Sem ()
		(use lick marks)		·		
7 Total Number	of Lectures, Tutorials, Pra	/				
Lectures = 52	of Lectures, rutorials, rra	Tutorials =	Nil	Practical =	- N:I	
B. Course Descrip	ntion:	i utoriais –	111	I factical -	- 1911	
	nhancement Compulsory c	ourse the st	udents w	ill be able	to know abo	ut the basi
knowledge of Eng	lish Comprehension, Speech	hes with its te	rminolog	ies ies	to know abo	ut the basi
and meage of Eng	non comprenention, speec		minolog	103.		
9.Course Objecti	ves (COs):					
1. To learn ba	asics of English language					
	owledge of English termino					
	he concept of grammar and i		e implicat	tions		
	e writing and communication	on skills.			1. 1. 1. N. 1. N. 1.	
10. Course Outco	omes (COs):					
Upon successful c	ompletion of this course, the	e students wil	l be able	to:		
	d bout the English Language					
2. Describe t	he terminology and basics co	oncept of Eng	lish Gran	nmar		
	riting skills, note making et					
	concept of English language		1	1 1		
		in meir writt	en and ve	erhal commu	inications	
11. Unit wise deta	ailed content	e in meir writt	en and ve	erbal commu	inications.	
11. Unit wise deta	ailed content					
11. Unit wise deta Unit-1	ailed content Number of lectures=13	Title of the	unit: Lis	stening Com	prehension	
 Unit wise deta Unit-1 Speeches, Intervi 	ailed content Number of lectures=13 ews, audio-video clippings	Title of the followed by	unit: Lis y exercis	stening Com ses, Introduc	prehension ction to Com	municatior
11. Unit wise deta U nit-1 Speeches, Intervie Importance of Con	ailed content Number of lectures=13 ews, audio-video clippings mmunication, Barriers to Co	Title of the s followed by ommunication	unit: Lis y exercis and ways	stening Com ses, Introduc s to overcom	prehension ction to Com the them	munication
 Unit wise deta Unit-1 Speeches, Intervi 	ailed content Number of lectures=13 ews, audio-video clippings	Title of the followed by	unit: Lis y exercis and ways	stening Com ses, Introduc s to overcom	prehension ction to Com the them	municatior
 11. Unit wise deta Unit-1 Speeches, Intervior Importance of Control Unit – 2 	ailed content Number of lectures=13 ews, audio-video clippings mmunication, Barriers to Co Number of lectures=13	Title of the s followed by mmunication Title of the	unit: Lis y exercis and ways unit: Cor	stening Com ses, Introducts to overcom tversation s	prehension etion to Com ne them kills	
 11. Unit wise deta Unit-1 Speeches, Interviol Importance of Condition Unit – 2 Greetings and Intra 	ailed content Number of lectures=13 ews, audio-video clippings nmunication, Barriers to Co Number of lectures=13 roducing oneself, Framing q	Title of the s followed by mmunication Title of the uestions and a	unit: Lis y exercis and ways unit: Cor answers,	stening Com ses, Introduces s to overcom storersation s Role play, B	prehension ction to Com te them kills Buying: asking	details etc
 11. Unit wise deta Unit-1 Speeches, Interviol Importance of Contemportance of Contemportance Unit – 2 Greetings and Intra Word formation statements 	ailed content Number of lectures=13 ews, audio-video clippings mmunication, Barriers to Co Number of lectures=13	Title of the s followed by mmunication Title of the uestions and a	unit: Lis y exercis and ways unit: Cor answers,	stening Com ses, Introduces s to overcom storersation s Role play, B	prehension ction to Com te them kills Buying: asking	details etc
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 11. Unit wise deta Unit-1 Speeches, Intervision Importance of Condition Unit – 2 Greetings and Intravision Word formation state Substitution 	ailed content Number of lectures=13 ews, audio-video clippings nmunication, Barriers to Co Number of lectures=13 roducing oneself, Framing q	Title of the s followed by mmunication Title of the uestions and a	unit: Lis y exercis and ways unit: Cor answers, 1 s, Synony	stening Com ses, Introduc s to overcom aversation s Role play, B ms, Affixati	prehension etion to Com the them kills Buying: asking on, Suffixation	details etc
11. Unit wise deta Unit-1 Speeches, Intervie Importance of Cont Unit – 2 Greetings and Intre Word formation states Substitution Unit – 3	ailed content Number of lectures=13 ews, audio-video clippings mmunication, Barriers to Co Number of lectures=13 roducing oneself, Framing q trategies, Vocabulary buildin Number of lectures=13	Title of the s followed by mmunication Title of the uestions and a ng: Antonyms Title of the	unit: Lis y exercis and ways unit: Cor answers, 1 s, Synony unit: R	stening Com ses, Introduc s to overcom versation s Role play, B ms, Affixati Reading Cor	aprehension etion to Com he them kills Buying: asking on, Suffixation nprehension	details etc n, One wor
11. Unit wise deta Unit-1 Speeches, Intervie Importance of Cont Unit – 2 Greetings and Intre Word formation state Substitution Unit – 3 Simple narration a	ailed content Number of lectures=13 ews, audio-video clippings mmunication, Barriers to Co Number of lectures=13 roducing oneself, Framing q trategies, Vocabulary buildin Number of lectures=13 and Stories, Newspaper and	Title of the s followed by mmunication Title of the uestions and a ng: Antonyms Title of the	unit: Lis y exercis and ways unit: Cor answers, 1 s, Synony unit: R	stening Com ses, Introduc s to overcom versation s Role play, B ms, Affixati Reading Cor	aprehension etion to Com he them kills Buying: asking on, Suffixation nprehension	details etc n, One wor
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 11. Unit wise deta Unit-1 Speeches, Intervise Importance of Contemportance of Contem	ailed content Number of lectures=13 ews, audio-video clippings mmunication, Barriers to Co Number of lectures=13 roducing oneself, Framing q trategies, Vocabulary buildin Number of lectures=13 and Stories, Newspaper and ension Number of lectures=13	Title of the s followed by mmunication Title of the uestions and a ng: Antonyms Title of the articles clipp Title of the	unit: Lis y exercis and ways unit: Cor answers, 1 answers, 1 answers, 2 answers, 2 answe	stening Com ses, Introducts to overcom iversation s Role play, B ms, Affixati Reading Con itence types, iting Comp	aprehension etion to Com he them kills Buying: asking on, Suffixation nprehension Note Making rehension	details etc n, One wor g, Paragrap
11. Unit wise deta Unit-1 Speeches, Intervise Importance of Con- Unit – 2 Greetings and Intre Word formation state substitution Unit – 3 Simple narration a Writing, Compreh- Unit – 4 Report Writing: ty	ailed content Number of lectures=13 ews, audio-video clippings munication, Barriers to Co Number of lectures=13 roducing oneself, Framing q trategies, Vocabulary building Number of lectures=13 and Stories, Newspaper and ension Number of lectures=13 votabulary building	Title of the pommunication Title of the pommunication Title of the pommunication ang: Antonyms Title of the pommunication Title of the pommunication Title of the pommunication Title of the pommunication	unit: Lis y exercis and ways unit: Cor answers, 1 s, Synony unit: R bings, Sen unit: Wr t, style, Pr	stening Com ses, Introducts s to overcom nversation s Role play, B ms, Affixati Reading Con intence types, iting Comp récis Writing	prehension ction to Com the them kills Buying: asking on, Suffixation nprehension , Note Making rehension g, Paragraph: C	details etc n, One wor g, Paragrap Drder, Topi
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11. Unit wise deta Unit-1 Speeches, Intervi- Importance of Con- Unit – 2 Greetings and Intr Word formation st substitution Unit – 3 Simple narration a Writing, Compreh Unit – 4 Report Writing: ty sentence, consister Syllable and Stress	Number of lectures=13 ews, audio-video clippings mmunication, Barriers to Co Number of lectures=13 roducing oneself, Framing q trategies, Vocabulary building Number of lectures=13 and Stories, Newspaper and ension Number of lectures=13 and Stories, Newspaper and ension Number of lectures=13 opes, characteristics. Letters ncy, coherence, Report and I s, Intonation and Modulation	Title of the pommunication Title of the pommunication Title of the pommunication Title of the pomposities Title of the pomposal proposal, Projon	unit: Lis y exercis and ways unit: Cor answers, T answers, T s, Synony unit: R bings, Sen unit: Writin t, style, Pr ect Writin	stening Com ses, Introducts s to overcom nversation s Role play, B ms, Affixati Reading Con intence types, iting Comp récis Writing	prehension ction to Com the them kills Buying: asking on, Suffixation nprehension , Note Making rehension g, Paragraph: C	details etc n, One wor g, Paragrap Drder, Topi
 11. Unit wise deta Unit-1 Speeches, Intervision Speeches, Intervision Speeches, Intervision Unit – 2 Greetings and Intration structure Greetings and Intrations Substitution Unit – 3 Simple narration at Writing, Comprehend Unit – 4 Report Writing: type sentence, consistent Syllable and Stress 12. Brief Description 	ailed content Number of lectures=13 ews, audio-video clippings mmunication, Barriers to Co Number of lectures=13 roducing oneself, Framing q trategies, Vocabulary buildin Number of lectures=13 and Stories, Newspaper and ension Number of lectures=13 ypes, characteristics. Letters ncy, coherence, Report and I s, Intonation and Modulation	Title of the production of the product of the produ	unit: Lis y exercis and ways unit: Cor answers, T answers, T s, Synony unit: R bings, Sen unit: Writin t, style, Pr ect Writin	stening Com ses, Introducts s to overcom nversation s Role play, B ms, Affixati Reading Con intence types, iting Comp récis Writing	prehension ction to Com the them kills Buying: asking on, Suffixation nprehension , Note Making rehension g, Paragraph: C	details etc n, One wor g, Paragrap Drder, Topi
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 11. Unit wise deta Unit-1 Speeches, Intervise Importance of Contemportance of Contemport Word formation stress Unit – 3 Simple narration at Writing, Comprehe Unit – 4 Report Writing: type sentence, consistent Syllable and Stress 12. Brief Description 1. https://www 	Number of lectures=13 ews, audio-video clippings mmunication, Barriers to Co Number of lectures=13 roducing oneself, Framing q trategies, Vocabulary building Number of lectures=13 and Stories, Newspaper and ension Number of lectures=13 and Stories, Newspaper and ension Number of lectures=13 ypes, characteristics. Letters ncy, coherence, Report and I s, Intonation and Modulation tion of self-learning / E-lead w.youtube.com/watch?v=G w.youtube.com/watch?v=41	Title of the pommunication Title of the pommunication Title of the pommunication Title of the pomposities Title of the pomposal proposal p	unit: Lis y exercis and ways unit: Cor answers, T answers, T s, Synony unit: R bings, Sen unit: Writin t, style, Pr ect Writin	stening Com ses, Introducts s to overcom nversation s Role play, B ms, Affixati Reading Con intence types, iting Comp récis Writing	prehension ction to Com the them kills Buying: asking on, Suffixation nprehension , Note Making rehension g, Paragraph: C	details etc n, One wor g, Paragrap Drder, Topi
 11. Unit wise deta Unit-1 Speeches, Intervise Importance of Contemportance of Contemportance of Contemportance of Contemportance of Contemportance of Contemport and Intraction and Intraction and Structures Unit – 3 Simple narration and Writing, Comprehe Unit – 4 Report Writing: type Syllable and Stress 12. Brief Descript 1. https://www 3. https://www 	Number of lectures=13 ews, audio-video clippings mmunication, Barriers to Co Number of lectures=13 roducing oneself, Framing q trategies, Vocabulary building Number of lectures=13 and Stories, Newspaper and ension Number of lectures=13 And Stories, Newspaper and ension Number of lectures=13 /pes, characteristics. Letters: ncy, coherence, Report and I s, Intonation and Modulation tion of self-learning / E-lea w.youtube.com/watch?v=41 w.youtube.com/watch?v=41	Title of the promunication Title of the promunication Title of the promunication Title of the promunication ang: Antonyms Title of the promunication Title o	unit: Lis y exercis and ways unit: Cor answers, 1 s, Synony unit: R bings, Sen unit: Wri t, style, Pr ect Writin	stening Com ses, Introducts s to overcom nversation s Role play, B ms, Affixati Reading Con intence types, iting Comp récis Writing	prehension ction to Com the them kills Buying: asking on, Suffixation nprehension , Note Making rehension g, Paragraph: C	details etc n, One wor g, Paragrap Drder, Topi
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 11. Unit wise deta Unit-1 Speeches, Intervise Importance of Contemportance of Contemport and Interport Word formation states Unit – 2 Greetings and Intravision Unit – 3 Simple narration at the substitution Unit – 4 Report Writing: type sentence, consistent syllable and Stress 12. Brief Description 1. https://www 3. https://www 	Number of lectures=13 ews, audio-video clippings mmunication, Barriers to Co Number of lectures=13 roducing oneself, Framing q trategies, Vocabulary building Number of lectures=13 and Stories, Newspaper and ension Number of lectures=13 and Stories, Newspaper and ension Number of lectures=13 ypes, characteristics. Letters ncy, coherence, Report and I s, Intonation and Modulation tion of self-learning / E-lead w.youtube.com/watch?v=G w.youtube.com/watch?v=0; w.youtube.com/watch?v=0; w.youtube.com/watch?v=0; w.youtube.com/watch?v=0;	Title of the period of the per	unit: Lis y exercis and ways unit: Cor answers, 1 s, Synony unit: R bings, Sen unit: Wri t, style, Pr ect Writin	stening Com ses, Introducts s to overcom nversation s Role play, B ms, Affixati Reading Con intence types, iting Comp récis Writing	prehension ction to Com the them kills Buying: asking on, Suffixation nprehension , Note Making rehension g, Paragraph: C	details etc n, One wor g, Paragrap Drder, Topi



13. Books Recommended

- 1. Fluency in English-II, Department of English, Delhi University, Oxford University Press.
- 2. Murphy's English Grammar with CD, Murphy, Cambridge University Press.
- 3. English Vocabulary in Use (Advanced), Michael McCarthy and Felicity, CUP.
- 4. Learning Spoken English by Lynn Lundquist-ASIN: B0094XNOPW.
- 5. Essential English Grammar: A Self-Study Reference and Practice Book for Elementary

Job L Aller Asha



SEMESTER II

2. Course Name	Questioned Documen	t Examination	a la maria de la com	L	Т	P
3. Course Code	17040201	t Examination		4	0	0
4.Type of Course		Core (1)	DSE ()	GE ()	SEC ()	0
5. Pre-requisite	10+2 with science	6.	Even (\checkmark)	Odd ()	Either Sem	Every
(if any)	stream	Frequency (use tick marks)		Odd ()	0	Sem ()
7. Total Number of	of Lectures, Tutorials,	/				
Lectures = 52	,	Tutorials =	00	Practica	1=00	•
8. Course Descrip	tion:					
This is core paper	in Forensic Sciences;	the students wi	ill be able to	know abo	out the basic in	mportance o
examining question	ned documents in crime	cases. Tools req	uired for exa	mination o	f questioned do	ocuments and
ignificance of con	paring handwriting san	nples.			•	
9. Course Objectiv	ves:					
	e the concept of Question					
	out the examination of v			document	s.	
	nd the aspects of handw					
	ze students with variou	s types of forger	ries.			
10. Course Outcon						
Upon successful co	mpletion of this course.	, the students wi	ll be able to:			
1 Understand	the importance of even	ining questione	d dogumenta	in onima a		
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Unit – 4	Number of lectures=13	Title of the unit: Forgeries
Definition,	and types of forgeries, Alterati	ons in documents, including erasures, additions, over-writings and
obliteration	s. Indented and invisible writi	ngs. Charred documents. Examination of counterfeit documents:
passports, v	visas and stamp papers. Tools an	nd techniques in questioned documents examination.
12. Brief D	escription of self-learning / E-	learning component
1. <u>http</u>	os://www.youtube.com/watch?v	=e2pzkdkUxLU
2. <u>http</u>	s://www.youtube.com/watch?v=	=Z1ojNCWRuFk
3. http	s://www.youtube.com/watch?v=	=OzTuFudWbQk
4. <u>http</u>	s://www.youtube.com/watch?v=	=AxubbuQJ9LU
5. <u>http</u>	s://www.youtube.com/watch?v=	=eOfa0RrBxbI
6. http	s://www.youtube.com/watch?v=	=RQdou4CCBUI
7. http	s://www.youtube.com/watch?v=	=TZA7zEXIg0M
	s://www.youtube.com/watch?v=	
	s://www.youtube.com/watch?v=	

13. Books Recommended.

1. O. Hilton, Scientific Examination of Questioned Documents, CRC Press, Boca Raton (1982).

2. A.A. Moenssens, J. Starrs, C.E. Henderson and F.E. Inbau, Scientific Evidence in Civil and Criminal Cases, 4thEdition, Foundation Press, New York(1995).

3. R.N. Morris, Forensic Handwriting Identification: Fundamental Concepts and Principles, Academic Press, London(2000).

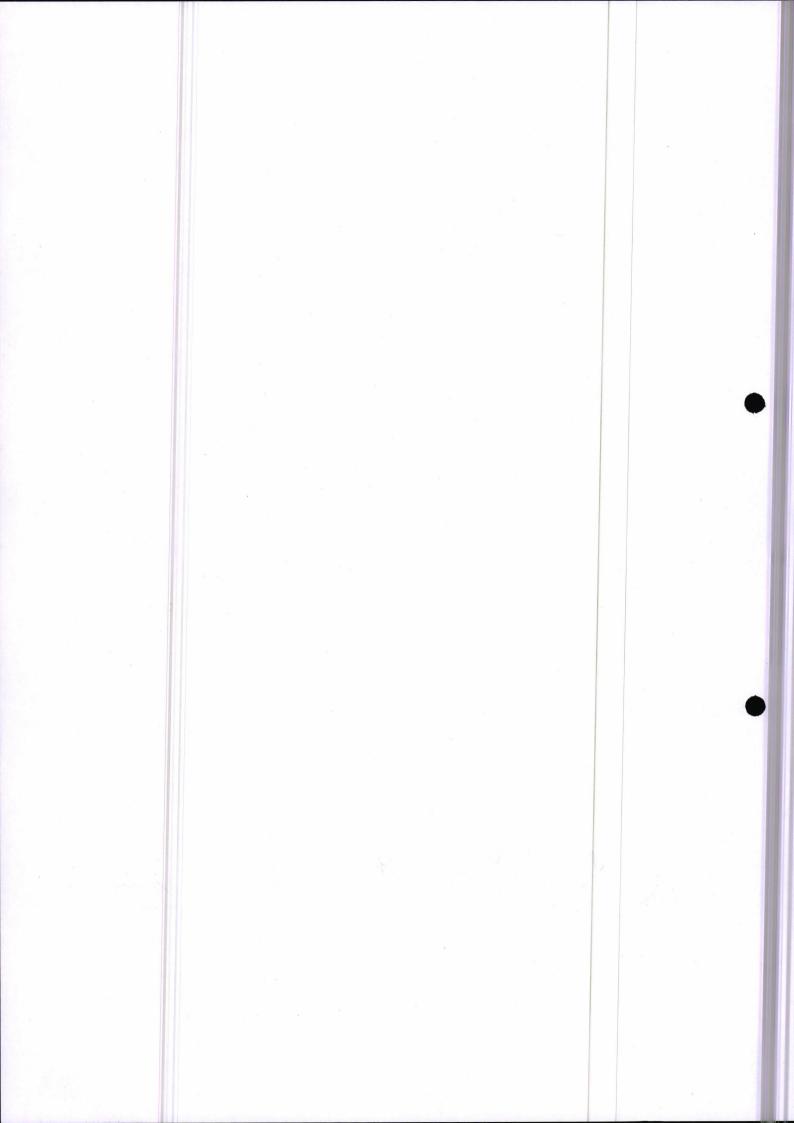
4. E. David, The Scientific Examination of Documents – Methods and Techniques, 2ndEdition, Taylor & Francis, Hants(1997).

Sign Asta Bh l

009



2. Course Name								
3. Course Code	17040202		0 0		P 4			
4. Type of Course	(use tick mark)	e tick mark) $Core(\checkmark)$ DSE() AEC() SEC		use tick mark) Core (\checkmark) DSE () AEC () S		Core (\checkmark)DSE ()AEC ()SEC ()		OE ()
5. Pre-requisite (if any)	10+2 with Science Stream	6. Frequency (use tick marks)	Even (✓)	Odd ()	Either Sem ()	Every Sem (
7. Total Number of	of Lectures, Tutor							
Lectures = 00		Tutorials = 00		Practica	l = 52			
examination of han	ourse, the students dwriting character	s will be able to apristics and various				ocument for th		
. Course Objectiv		11.00						
		ompare different ha	andwriting sa	amples.				
	e simulated and tr		noton and al	atio man-				
		atures of currency i				-1		
		erations, obliteration	ons and erast	lies in nar	idwriting samp	bles.		
10. Course Outcon Jpon successful co 1. Understand	nes (COs): mpletion of this co the importance of	ourse, the students	will be able	to: ents in crin	ne cases.			
 10. Course Outcor Jpon successful co 1. Understand 2. Get hands o 3. Develop sci 4. Understand documents 11. Practicals 	nes (COs): ompletion of this co the importance of on training with the entific aptitude for	ourse, the students examining questic tools required for comparing hand v d methods of detec	will be able oned docume examinatior writing samp	to: ents in crin n of questi- ples.	ne cases. oned documer	nts		
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2. Course Name	epartment: Forensic S Fingerprints and other		idence	L	Т	P
3. Course Code	17040203		lucilee	4	0	0
4.Type of Course		Core (✓)	DSE ()	GE ()	SEC ()	
5. Pre-requisite	10+2 with science	6.	Even(\checkmark)	Odd ()	Either	Every
(if any)	Stream	Frequency		Out	Sem ()	Sem ()
(II ully)	Stream	(use tick			Sem	Sem ()
		marks)				
7 Total Number	of Lectures, Tutorials	/				
Lectures = 52	of Lectures, rutorials	Tutorials = N	il	Practica	l = Nil	
8. Course Descri	ntion:	i utoriuis i t		Tractica		
	r of forensic sciences,	the student wil	1 he able to	know abou	t the basic	knowledge
fingerprints and of	ther impression evidence	e types and the	eir examinatio	on by devel	loning the la	tent prints an
significance in cri	me scene investigation.	e, types, and the	en examinatio	JII UY UEVE	loping the la	atent prints and
9. Course objecti						
	bout the basics of finger	-				
2. To underst	tand the different classif	fication systems	s in fingerprin	t		
3. To underst	tand the different method	ods and techniq	ues of develo	ping finger	prints on va	arious surface
at crime sc					-	
4 To learn al	bout different types of p	rints/impression	ns and their c	omnarison	2	
	oour annerent types of p	minus/ mipression	no una men e	omparison	3	
	omes (COs):					
10. Course Outco		e the students y	will be able to	•		
10. Course Outco Upon successful c	completion of this cours				ara usad	in fingomein
10. Course OutcoUpon successful c1. Understand	completion of this cours d the working of di				are used	in fingerprin
10. Course Outco Upon successful c 1. Understand examinatio	completion of this cours d the working of di ons.	fferent instrum	nental techni	ques that		
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 Course Outco Upon successful c Understand examinatio Understand investigation Know the second seco	completion of this cours d the working of di ons. d the analytical process on. significance of foot, pal atent fingerprints on crin ailed content: Number of	fferent instrum of individual ide lm, ear and lip p	nental technic entification fro prints. analytical me	ques that om fingerp thods	rint and its u	
 10. Course Outco Upon successful c 1. Understand examinatio 2. Understand investigation 3. Know the 4. Develop la 11. Unit wise deta Unit-1 	completion of this cours d the working of di ons. d the analytical process on. significance of foot, pal atent fingerprints on crin ailed content: Number of lectures=13	fferent instrum of individual ide lm, ear and lip p me scene using a Title of the un	nental technic entification fro prints. analytical me nit- Basics of	ques that om fingerp thods Fingerprin	rint and its u	ise in the crim
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 10. Course Outco Upon successful c 1. Understand examinatio 2. Understand investigation 3. Know the 4. Develop la 11. Unit wise deta Unit-1 Introduction and Hangerprinting. Type fingerprints. Classing 	completion of this cours d the working of di ons. d the analytical process on. significance of foot, pal atent fingerprints on crin ailed content: Number of lectures=13 history, Biological basi pes of fingerprints. Fing sification and catalogu	fferent instrum of individual ide im, ear and lip p me scene using a Title of the un s of fingerprints gerprint patterns ing of fingerpr	ental technic entification fro prints. analytical me nit- Basics of s. Formation s. Fingerprint	ques that om fingerp thods Fingerpri of ridges. I characters,	rint and its u nting Fundamenta ′minutiae. P	ise in the crim
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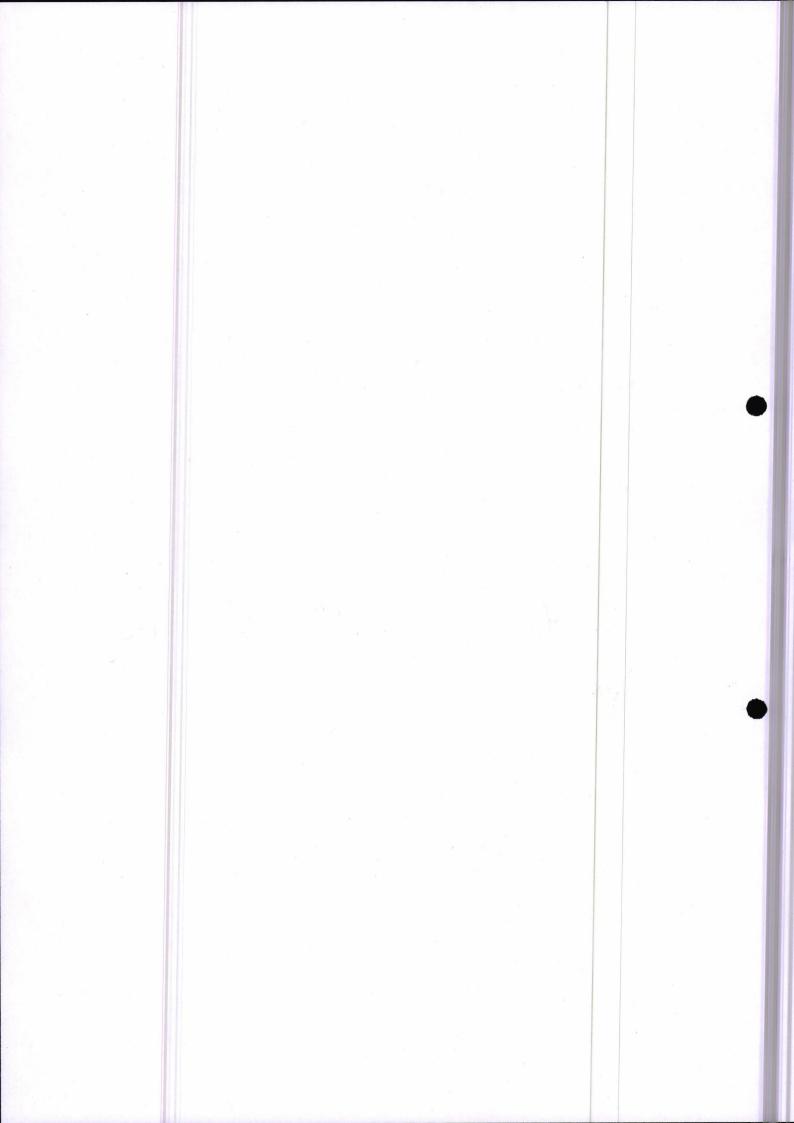
Importance of footprints. Casting of foot prints, Electrostatic lifting of latent foot prints. Palm prints. Lip prints - Nature, location, collection and examination of lip prints. Ear prints and their significance.

Unit – 4	Number of	Title of the unit: comparison of prints and report writing
	lectures=13	
Comparis	on of fingerprints, footprints, fo	ootwear and other impression evidences. Report writing and expert
witnessin	g.	
12. Brief	Description of self-learning /	E-learning component
1. <u>ht</u>	tps://www.youtube.com/watch	?v=0piLHJkjLAQ
2. <u>ht</u>	tps://www.youtube.com/watch	?v=fMLGROOcvWQ&t=50s
3. <u>ht</u>	tps://www.youtube.com/watch	?v=InPyy5tpBLM
4. <u>ht</u>	tps://www.youtube.com/watch	?v=OONfQcGd-uE
5. <u>ht</u>	tps://www.youtube.com/watch?	?v=BUhyV3WC6y8
6 ht	the //www.woutube.com/watch	AD AD AD AD AD AD A AD AD AD AD AD AD AD

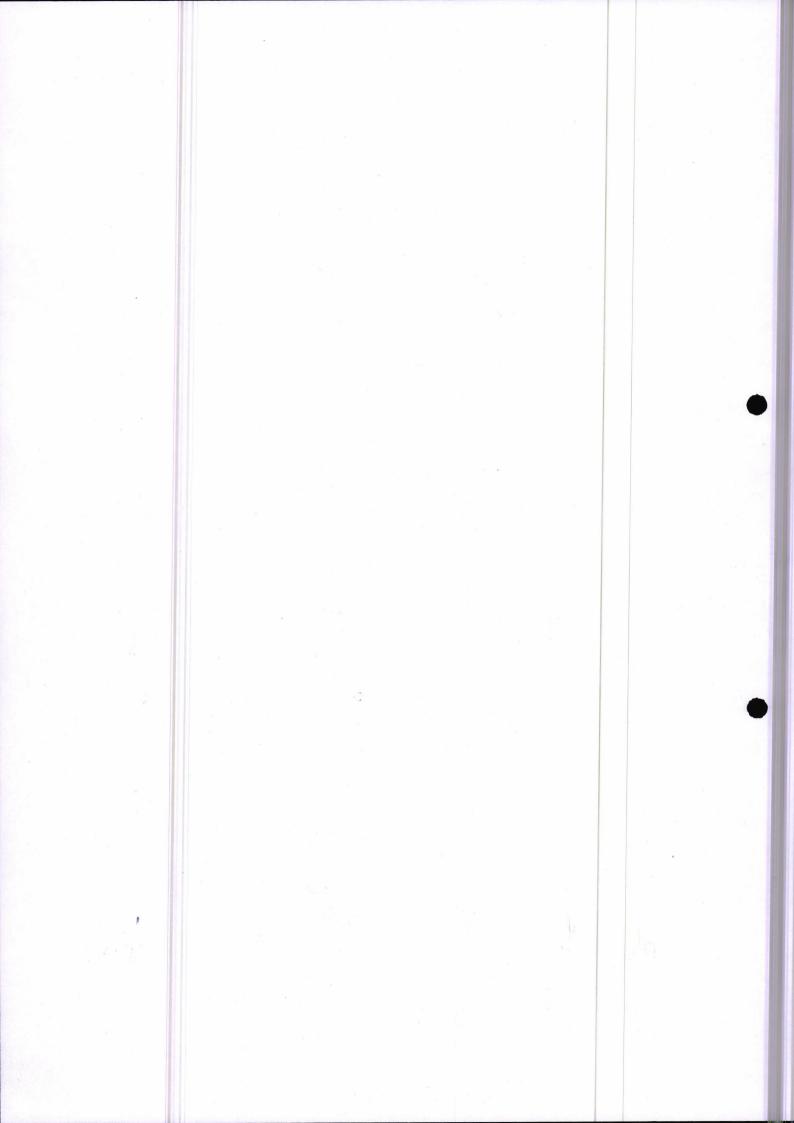
6. <u>https://www.youtube.com/watch?v=ARdEifU_KVg</u>

13. Books Recommended

- 1. Bridges, B.C; Criminal Investigation, Practical Fingerprinting, Thumb Impression, Handwriting expert Testimony, Opinion Evidence., Univ. Book Agency, Allhabad, 2000
- 2. Mehta, M.K; Identification of Thumb impression & cross examination of Fingerprints,
- 3. N.M. Tripathi Pub. Bombay, 1980.
- 4. Chatterjee, S.K; Speculation in Fingerprint Identification, Jantralekha printing Works, Kolkata, 1981.
- Cowger James F; Friction Ridge Skin- Comparison & Identification of Fingerprints, CRC Press, NY, 1993
- 6. Cossidy, M.J; Footwear Identification, Royal Canadian, Mounted Police, 1980.
- 7. Iannavelli, A.V; Ear Identification, Forensic Identification Series, Paramount, 1989.
- 8. Henry, C.L. & Ganesslen, R.E; Advances in Fingerprint Technology, CRC Press, London, 1991.
- 9. Jain, A.K., Flynn, P.& Ross A.A., Handbook of Biometrics, Springer, New York 2008



2. Course Name	Fingerprints and	Evidence Lan	L	Т		P	
3. Course Code	17040204			0	0		4
4. Type of Course	(use tick mark)	Core (✓)	DSE ()	AEC ()	SEC	C ()	OE ()
5. Pre-requisite (if any)	10+2with Science stream6. Frequency (use marks)Even (✓)Odd ()Either 						Every Sem ()
7. Total Number of	of Lectures, Tutor	rials, Practicals					
Lectures = 00		Tutorials = 00		Practica	l = 52		
8.Course Descript	tion:						
n this laboratory co rom various surfac D.Course Objectiv	ourse students will ce using different t ves:	be able to apply kn echniques and prep	owledge of fin	ngerprintin develop ot	ng to d her in	evelo	p fingerprir sions
 To develop To understa To understa Course Outcon Upon successful con Developing Understand Utilize different 	and the different ty fingerprints from and the development mes (COs): ompletion of this co scientific aptitude and compare finger erent developing m ast and compare foo	various surfaces nt of footprints ourse, the students to collect and class erprints. hethods of latent/ch	will be able to sify fingerprin)			
 To carry ou To identify To carry ou To carry ou To investiga To investiga To use diffe 	lain and rolled fing t ten-digit classific different fingerprin t ridge tracing and ate physical metho ate chemical metho erent light sources cast of footprints.	ation of fingerprin nt patterns. ridge counting ds of fingerprint de ods of fingerprint d	etection.	rints.)		
1. Lab Manual	ls Of DFSS			e el			
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1. Name of the De	partment: Forensic Scien	nce									
2. Course Name	Proactive and Reactive F		L	Т	Р						
3. Course Code	17040205		4	0	0						
4. Type of Course	(use tick mark)	Core ()	DSE ()		SEC (🗸)						
5. Pre-requisite	10+2 with Science	6. Frequency	Even	Odd	Either Ever						
(if any)	stream	(use tick	 (✓) 	0	Sem () Sen						
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7. Total Number of Lectures, Tutorials, Practicals Lectures = 52 Tutorials = 0 Practical = 0											
Lectures = 52Tutorials = 0Practical = 08. Course Description											
	rensic Sciences provides the	basic knowledge an	d basis of Proa	active Forer	sics, its application						
and scope in differen	t fields of Forensic Science	. This course will al	lso discuss abo	out the tool	s and techniques						
proactive forensics.											
9. Course Objective The objectives of the											
	he basics of Proactive Fore	ensics									
	between Proactive and Re										
3. To understand a	bout different types of pro	active and prevent									
	ne aim and scope of Proact	tive Forensics in cu	irrent scenario) .							
10. Course Outcome	es (COs)										
	mpletion of this course, the										
	basic requirements and im			S.							
	ence between the Proactive ledge of Proactive Forensic			at animaina	I am d'antine a tamas						
					and crime issue						
	4. Know the various edge cutting tools and techniques used in Proactive Forensics.										
I1. Unit wise detailed content Unit-1 Number of lectures = 10 Title of the unit: Introduction to Proactive											
Unit-1	d content Number of lectures	= 10 Title of	the unit: I		on to Proactiv						
Unit-1	Number of lectures	= 10 Title of Forensics	the unit: I	ntroductio							
Unit-1 Introduction to proa	Number of lectures	= 10 Title of Forensics	the unit: I	ntroduction ntroducti ntroduction ntroduction ntroduction ntroduction ntroduct	ut crime, forensi						
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Unit-1 Introduction to proa readiness to comba studies related to pro	Number of lectures ctive forensics, proactive v t and prevent crimes, per pactive forensics.	= 10 Title of Forensics vs reactive forensic ople participation i	the unit: I s, public awar in assisting fo	ntroduction reness abor prensic inv	ut crime , forensi vestigations. Cas						
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Unit-1 Introduction to proa readiness to comba studies related to pro Unit – 2 Body armors: Manu	Number of lectures ctive forensics, proactive v t and prevent crimes, per pactive forensics. Number of lectures facturing, types, uses, and	= 10Title of ForensicsForensicsvs reactive forensicople participation is= 10Title of the Proactivelimitations; Licens	the unit: I s, public awar in assisting for the unit: Vario Forensics e plate recogn	ntroduction reness abor prensic inv us Composition: Com	ut crime , forensi vestigations. Cas nents and Tools i nponents, workin						
Unit-1 Introduction to proa readiness to comba studies related to pro Unit – 2 Body armors: Manu and effectiveness;	Number of lectures ctive forensics, proactive v t and prevent crimes, peopactive forensics. Number of lectures facturing, types, uses, and Trace portal machines, or	= 10Title of Forensicsvs reactive forensic ople participation is= 10Title of th Proactivelimitations; Licens CCTV: Working,	the unit: I s, public awar in assisting for the unit: Vario Forensics e plate recogn functions, ty	ntroduction reness abor prensic inv us Composi ition: Com pes, and	ut crime, forensi vestigations. Cas nents and Tools i nponents, workin uses in forensi						
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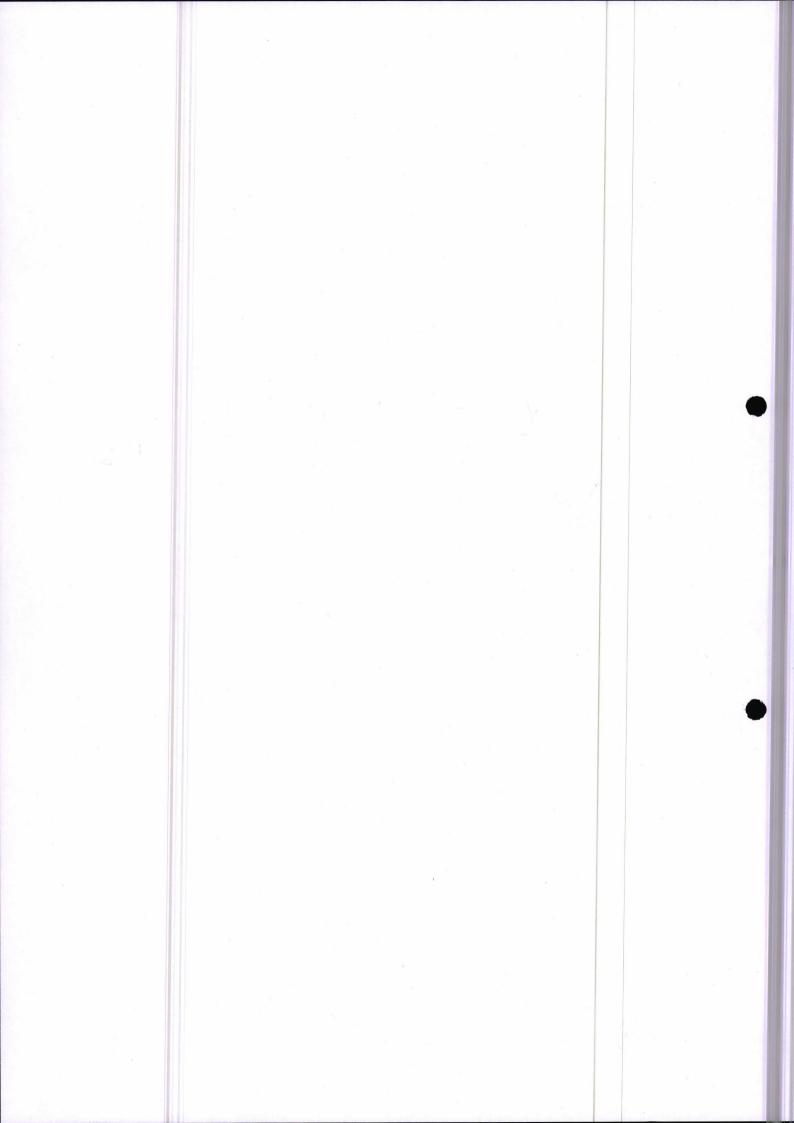
- 1. https://www.youtube.com/watch?v=cxyJRGxWN0k
- 2. https://www.youtube.com/watch?v=I3i19qRjSSg
- 3. https://www.youtube.com/watch?v=QVjFjw8uYRc
- 4. https://www.youtube.com/watch?v=530Xv_EKnKs
- 5. https://www.researchgate.net/publication/220849931_The_Proactive_and_Reactive_Digital_Forensic s_Investigation_Process_A_Systematic_Literature_Review
- 6. https://link.springer.com/chapter/10.1007/978-3-642-23141-4_9
- 7. https://www.digitalforensicsmagazine.com/index.php?option=com_content&view=article&id=573

13. Books Recommended

- 1. Alharbi, S. Proactive System for Digital Forensic Investigation.
- Gritzalis, D., Furnell, S., & Theoharidou, M. (2012). Information Security and Privacy Research. Berlin, Heidelberg: Springer Berlin Heidelberg.
- 3. Bruchey, W. (2003). Suppression of material failure modes in titanium armors. Aberdeen Proving Ground, MD: Army Research Laboratory.

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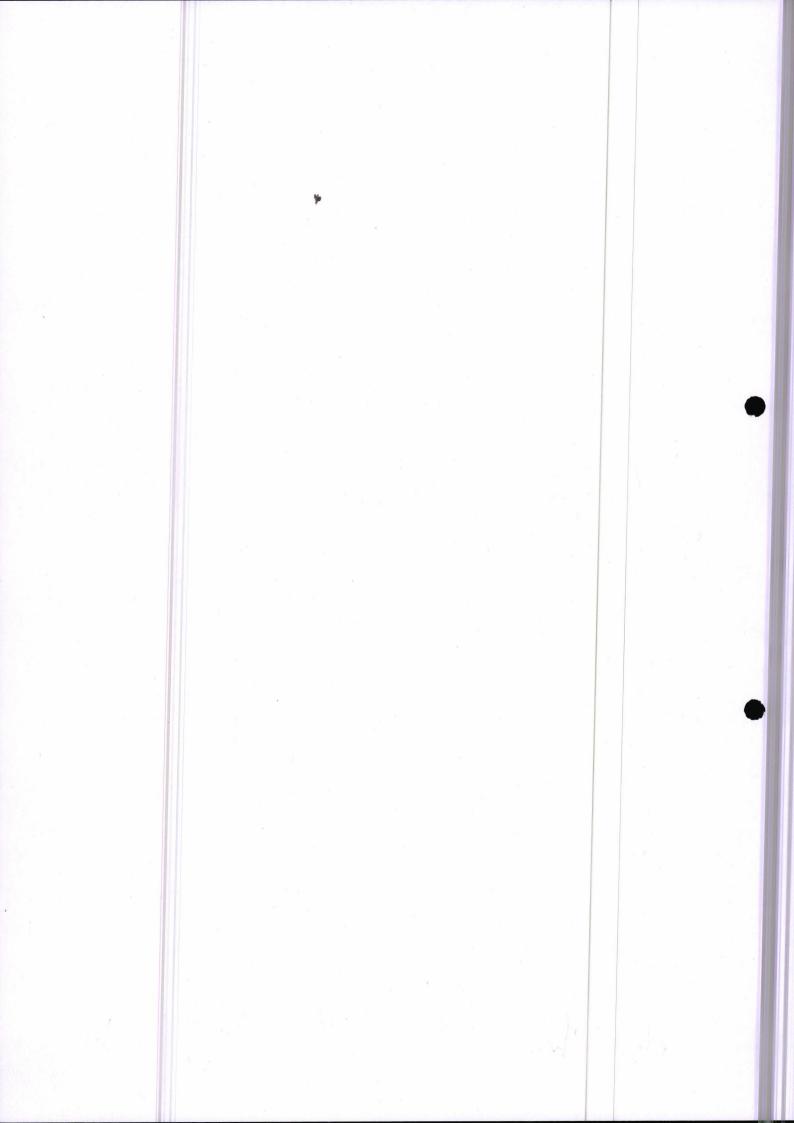
- 4. Lynch, V., & Duval, J. (2006). Forensic nursing. St. Louis, MO: Elsevier Mosby.
- 5. Taylor, J. (2011). Forensic accounting. New York: Financial Times Prentice Hall.



2. Course Name	Environmental Science			L	Τ	P
3. Course Code	AECC01002			4	0	0
4. Type of C	ourse (use tick mark)	Core()	DSE ()	AECC(√)	SEC()	
5. Pre-requisite (if any)	10+ 2 with Science Stream	6. Frequen cy (use tick marks)	Even (√)	Odd ()	Either Sem ()	Every Sem ()
7. Total Number	of Lectures, Tutorials, P	/			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	
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8. Course Descri	ption:					
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sciences, social sc	eiences, and humanities.		5 1		01 1	
9. Course Object						
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	tand the scope of environm					
3. To gain the	he knowledge and impact	of various	s types of po	ollutions along	with thei	r preventiv
measures.				C		
4. To underst	tand the different environm	ental issues	and there so	cial impact		
				erar impuet.		
10. Course Outco	omes (COs):	a tribucht				
Upon successful c	completion of this course, t	he students	will be able t	0.		
	1			0.		
1. Know the					ofnatural	resources
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2. Describe the		tal studies a	and methods of	of conservation		
2. Describe the diversity.	Importance of environmen he structure and function of	tal studies a f an ecosyste	nd methods o em and expla	of conservation in the values an	nd Conserv	ation of bio
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Concept of an ecosystem. Structure and function of an ecosystem. Producers, consumers and decomposers. Energy flow in the ecosystem. Ecological succession. Food chains, food webs and ecological pyramids. Biodiversity and its conservation. Hot-spots of biodiversity. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

Unit – 3 Number of lectures=13 Title of the unit: Environmental Pollution

Definition, causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards. Solid waste Management: Causes, effects and control measures of urban and industrial wastes. Fireworks, their impacts and hazards. Pollution case studies. Disaster management: floods, earthquake, cyclone and landslides.

Unit – 4 Number of lectures=13 Title of the unit: Social Issues and the Environment

Unsustainable to Sustainable development. Urban problems related to energy. Water conservation, rain water harvesting, watershed management. Resettlement and rehabilitation of people; its problems and concerns. Case studies. Environmental ethics: Issues and possible solutions. Consumerism and waste products. Environmental Legislation (Acts and Laws) Issues involved in enforcement of environmental legislation. Human Population and the Environment. Population growth, variation among nations with case studies, Population explosion – Family Welfare Programmes and Family Planning Programmes, Human Rights, Value Education, Women and Child Welfare

12. Brief Description of self-learning / E-learning component

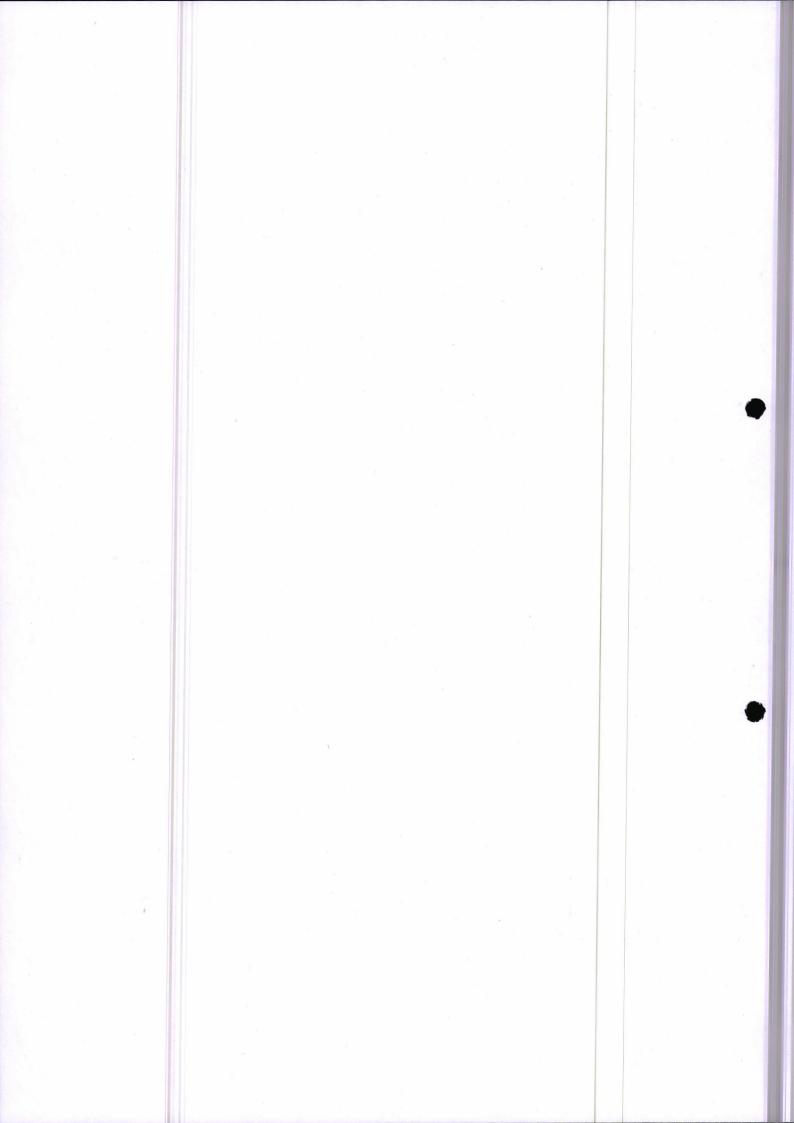
- 1. <u>https://www.youtube.com/watch?v=9TmZRZ-w1Y4</u>
- 2. <u>https://www.youtube.com/watch?v=YaRkQ6mYNC4</u>
- 3. <u>https://www.youtube.com/watch?v=bCVtowxwqR8</u>
- 4. <u>https://www.youtube.com/watch?v=v-RMhW4Xcyw</u>
- 5. <u>https://www.youtube.com/watch?v=InD80_yGLR0</u>
- 6. <u>https://www.youtube.com/watch?v=QzP2mnrVdeY</u>

13. Books Recommended

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- 1. Dhameja, S. K., Environmental Engineering and Management, S. K. Kataria and sons, New Delhi, 1st Edition2015.
- 2. Anubha Kaushik and Kaushik C.P., Environmental Science & Engineering" New Age international Publishers, New Delhi, 2010.
- 3. Gilbert M. Masters, Introduction to Environmental Engineering and Science, Pearson Education Pvt., Ltd., 2nd edition, 2004.
- 4. Erach Bharucha, Textbook for Environmental Studies, UGC, New Delhi, 2004.
- 5. Miller T.G. Jr., "Environmental Science", Wadsworth Publishing Co. USA, 2nd Edition2004.
- 6. Erach Bharucha, "The Biodiversity of India", Mapin publishing Pvt. Ltd., Ahmedabad India, 2002.
- 7. Trivedi R.K., "Handbook of Environmental Laws", Rules, Guidelines, Compliances and Standards, Vol. I and II, Enviro media, 2003.
- Cunningham, W.P. Cooper, T.H. Gorhani, "Environmental Encyclopedia", Jaico Publ., House, Mumbai, 2001. 7. Wager K.D., "Environmental Management", W.B. Saunders Co., Philadelphia, USA, 1998.
- 9. Sawyer C. N, McCarty P. L, and Parkin G. F., Chemistry for Environmental Engineering, McGraw-Hill, Inc., New York, 1994.

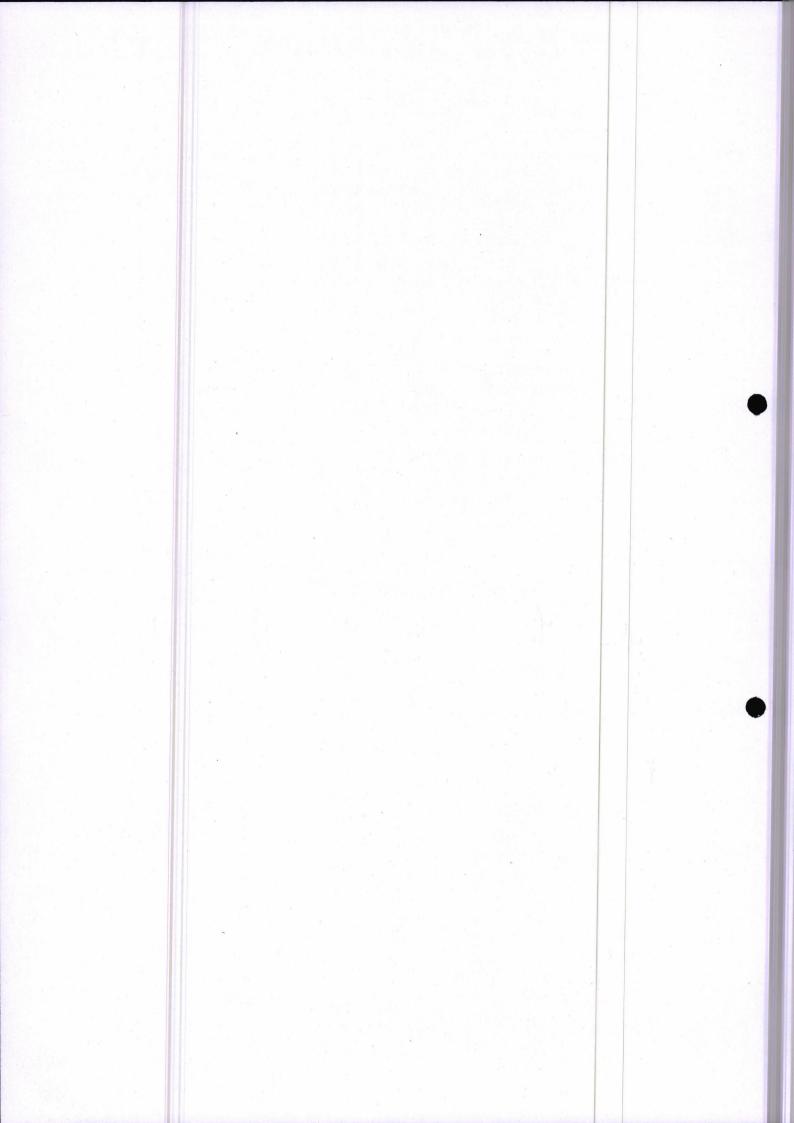
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3. Course Code	17040301			4	0	0
1 Tune of Comme (m			DODA			
4. Type of Course (us		Core (✓)	DSE ()	AEC ()	SEC ()	OE ()
5. Pre-requisite	10+2 with Science	6.	Even ()	Odd(√)	Either	Every Sem ()
(if any)	stream.	Frequency			Sem ()	
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7. Total Number of I	Lectures, Tutorials, Pra	marks)				
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8. Course Description	n:	1 utor lais – (Tactical	- 00	
The course forensic ad	counting deals with issu	ies that have s	ignificant	implication	s for both	corporations and
individuals. Funds mis	sappropriation, tax fraud	L fictitious rev	enue are a	few exami	ales of the	disputes that are
prevalent in today's er	a which requires investig	gations to get t	he truth ou	it. Student v	vill underst	and the methods
applied to investigate	a fraud committed and a	also will learn	the impor	tance of fra	ud prevent	ion and forensic
accounting principles.		and a straight	r		au provent	ion und forensie
9. Course Objectives:						
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principles.	amental knowledge that	is crucial for t	inderstand	ing and pra	cticing fore	ensic accounting
	s to understand the balan	ce sheet and a	idit report	c		
3. To inculcate th	e qualities for working e	effectively in m	ulticulture	s. al environm	ont	
4. Promoting self	-learning through discus	sion of case st	idies		ent.	
10. Course Outcomes			aures.			
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e poir completion of th	te course the student will					
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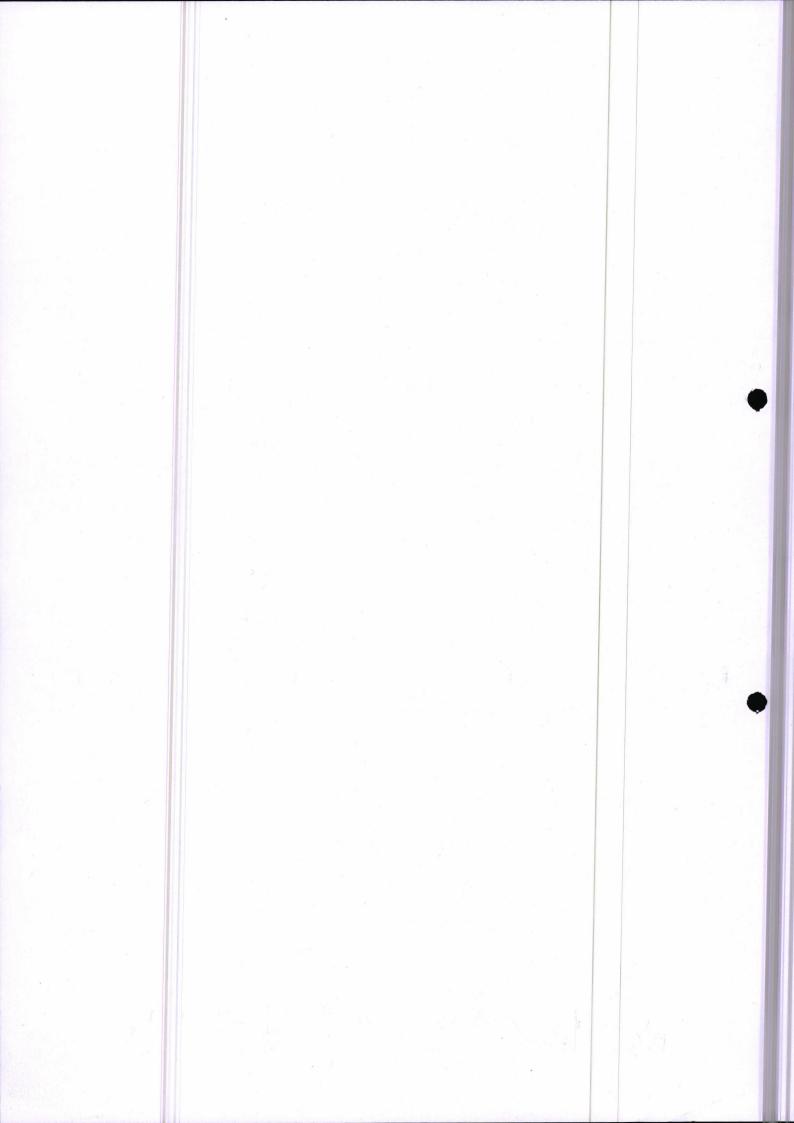
Unit -4	Number of lectures: 13	Title of the unit: Fraud Response
Fraud Investiga	tion and Response Protoc	ols, Objectives of Fraud Investigations. Evidence Gathering, Fraud
Theory Approa	ch, Evidence Collection Pro	ocess, Document Analysis, Digital Evidence Analysis, Interviewing
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Analysis.	, , , , , , , , , , , , , , , , , , , ,	and analysis, Demondo Daw, Taronashig cara transaction
12. Brief Descr	iption of self-learning / E	C-learning component
		vestigations-and-forensic-accounting
	ww.youtube.com/watch?v	
7. <u>https://w</u>	ww.youtube.com/watch?v	v=HiXwC91r6cY
8. <u>https://w</u>	ww.youtube.com/watch?v	v=i-RPqKF8z2g
9. <u>https://w</u>	ww.youtube.com/watch?v	v=eZOIacH5RJY
10. <u>https://w</u>	ww.youtube.com/watch?v	z=7uhAn19V1EY
3. Books Reco	mmended	
1. Mark J.	Nigrini, FORENSIC AN	NALYTICS- Methods and Techniques for Forensic Accounting
Investig	ation, John & Wiley Sons, 1	Inc. 2011.
		pwood, Carl Pacini and George R. Young, Essentials of Forensic
Account	ing, American Institute of	Certified Public Accountants, Inc, 2015.
		I. Singleton, Fraud Auditing and Forensic Accounting, John & Wiley
Sons, In	c, 2011.	
4. Mary-Jo	Kranacher and Richard R	iley. Forensic Accounting and fraud examination. Wiley, 2020.
5. Joseph U	Jgwulali. Essential of forer	nsic accounting and fraud management. Design publishing 2019
6	3ly h	Assa Asta Juni las



1. Name of the Depa	rtment: Forensic Scien	ce				
2. Course Name	Forensic Accounting I	aboratory		L	Т	Р
3. Course Code	17040302			0	0	4
4. Type of Course (u	ise tick mark)	Core (√)	DSE ()	AEC ()	SEC ()	OE ()
5. Pre-requisite	10+2 with Science	6.	Even ()	Odd(√)	Either	Every Sem ()
(if any)	stream.	Frequency		Ouu(v)	Sem ()	
		(use tick				
		marks)	-			
	Lectures, Tutorials, Pra					
Lectures = 00		Tutorials = ()0	Practical	= 52	
8. Course Descriptio						
The course forensic a	ccounting deals with issue	ues that have s	ignificant	implication	s for both	corporations and
individuals. As comm	nitting fraud has become	quite prevalent	t in today's	s time, the s	tudents sho	ould have insight
the methods applied to	icate the red flags associa	ated with fraud	I. Through	this course	the student	t will understand
forensic accounting p	o investigate a fraud com	imitted. They	will learn t	the importai	nce of fraud	d prevention and
9. Course Objectives						
1. Inculcating sk	ills that are crucial for un	derstanding ar	nd practici	ng forensic	accounting	
2. Develops kno	wledge to understand the	balance sheet	and audit	reports.		
3. Imparting qua	lities for working effectiv	vely in a multio	cultural en	vironment.		
	f-learning through discus	sion of case st	udies.			
10. Course Outcome						
Upon completion of t	he course the student wil	l be able to:				
1 Evolute the v		1				
	arious tools used in forer ccount's summary for inc		flogs			
	ensic principles in fraud i		r nags.			
	e timeline associated with					
11. List of Experime						
1. To understand	the fraud triangle and fra	aud diamond th	nrough rele	evant case s	tudies	
	ve accounting cycles.		noughten	evant cuse s	ituares.	
	the data that is collected	during fraud a	inalysis.			
	and apply Benford's Lav	· · · · · · · · · · · · · · · · · · ·				
	the framework of the so			tification of	f fraud.	
	the use of MS-EXCEL v					
	the use of Correlation to					
	ne details and red flags in	stock market of	data using	Time-Serie	s Analysis.	
	ncial statement fraud.					
12. Books Recomme						
I. Mark J. Nigrin	ni, Forensic Analytics- M	lethods and Te	chniques f	for Forensic	e Accountir	ng Investigation,
	Sons, Inc, 2011.		. 10			
2. Michael A. C	rain, William S. Hopwoo	od, Carl Pacin	1 and Geo	rge R. You	ing, Essent	als of Forensic
3. Tommie W. S	merican Institute of Cert	aletor Fred	Audition	, Inc, 2015.		
Sons, Inc, 201	ingleton and Aaron J. Sin	gieton, Fraud	Auditing a	na Forensic	Accountin	ig, John & Wiley
50h5, mc, 201	·		0.1			
	l la	SQL.	apple		~ .	
	The second secon	- An-	Pro-	H		lat
13-2	N			U		TOU



1. Name of the Depar	rtment: Forensic Scien	ce.				
2. Course Name	Crime Scene Ethics an	the second s		L	Т	P
	Management				e	
3. Course Code	17040303			4	0	0
4. Type of Course (us	a tial mark)	C (b)	DSE ()	AECO	SECO	OFO
		Core (√)	~	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science	6.	Even ()	Odd(√)	Either	Every Sem ()
(II any)	stream.	Frequency (use tick			Sem ()	
		marks)				
7. Total Number of L	Lectures, Tutorials, Pra					
Lectures $= 52$		Tutorials = (0	Practical	=00	
8. Course Description	1:			Tructicui		
Evidence management	t has become a crucial co	omponent for the	he law enf	orcement co	ommunity.	This core course
will provide the know	vledge of professional e	thics of crime	scenes an	nd manager	nent of ph	vsical evidences
occurs at crime scene.						
9. Course Objectives						
	owledge of professional					
	knowledge of profession					
	and preserve physical	evidence that	will yiel	d reliable	informatio	n to aid in the
investigation. 4. To make stude	nts learn to maintain ch	ain of custody	and avide	noo intomi	ty through	ant the second of
evidence collec	ction, storage, preservati	on and proces	sing	ince integri	ty unought	but the course of
10. Course Outcomes		on, and proces	51115.			
	letion of this course, the	student will b	e able to.			
opon successful comp	iction of this course, the	student will b				
1. To know about	the disciplinary knowle	dge of the crin	ne scene m	anagement		
	tical thinking and proble					e forensic
Investigations						
	alytical and scientific rea					
	ral values and profession		e keeping u	ip with thei	r expertise	and genuineness
	ene and during court test	timony.				
11. Unit wise detailed			S. Martine S.	Station State		
Unit-1	Number of lectures -	Title of the u	nit: Code	e of Ethics		
	13	CD C	7.1.	1		
Ethics: Code of ethics, Morals, Cradibility as	Importance of Codes of	Professional I	thics, Leg	gal vs. Scien	ntific Pract	ices, Ethics and
	a Reason for a Code of I Ethical Requirements In					lication of
Unit – 2	Number of lectures-	Title of the u			Scientist.	
	13	The of the u	mit. Etnic	ai 1550C5		
Ethical Issues Involvir	ng Professional Practice	Ethical Issue	s Involvin	g Technica	1 Competer	nce Moot court
Behaviour and duties of	of forensic investigator a	t crime scene a	and court.	5 reennea		
Unit – 3	Number of lectures-	Title of the u	the second second	ical avidan	an monog	mont
onn – 5	13	The of the u	nn. i nys	ical eviden	ce manage	ment
Scene Security, Scene	Integrity, Scene Walk-	Through and I	nitial Docu	mentation.	Evidence	Recognition and
	ocumentation, Collection					
evidence, evidences m	anagement of fingerprin	ts, Collection a	nd Preser	vation of Bi	ological Ev	vidence, General
Principles and Technic	ques of Trace Evidence	Collection, Fin	rearm evic	lences and	its collection	on, preservation,
			210	•		
1	r tog	G F	pin	Wr		
Bil	IN ANT			T		Jal



drug evidence handling procedure, evidence collection and management for forensic toxicological analysis, question documents collection and preservation, evidence collection and management for digital evidences, evidence collection and management in arson cases.

Unit -4 Number of lectures-13 Title of the unit: Case studies related to failure of crime scene management

The Aarushi-Hemraj murder case, important cases related to negligence at crime scene, The Innocence project

12. Brief Description of self-learning / E-learning component

- 1. <u>https://www.youtube.com/watch?v=7KL_JT-jUil</u>
- 2. https://www.youtube.com/watch?v=kpjFQmCn9EI
- 3. <u>https://www.youtube.com/watch?v=F7B9gicu20k</u>
- 4. https://www.youtube.com/watch?v=N0wfVBXbwJk&t=12s
- 5. <u>https://www.youtube.com/watch?v=HvYXFNPW3KA</u>

13. Books Recommended

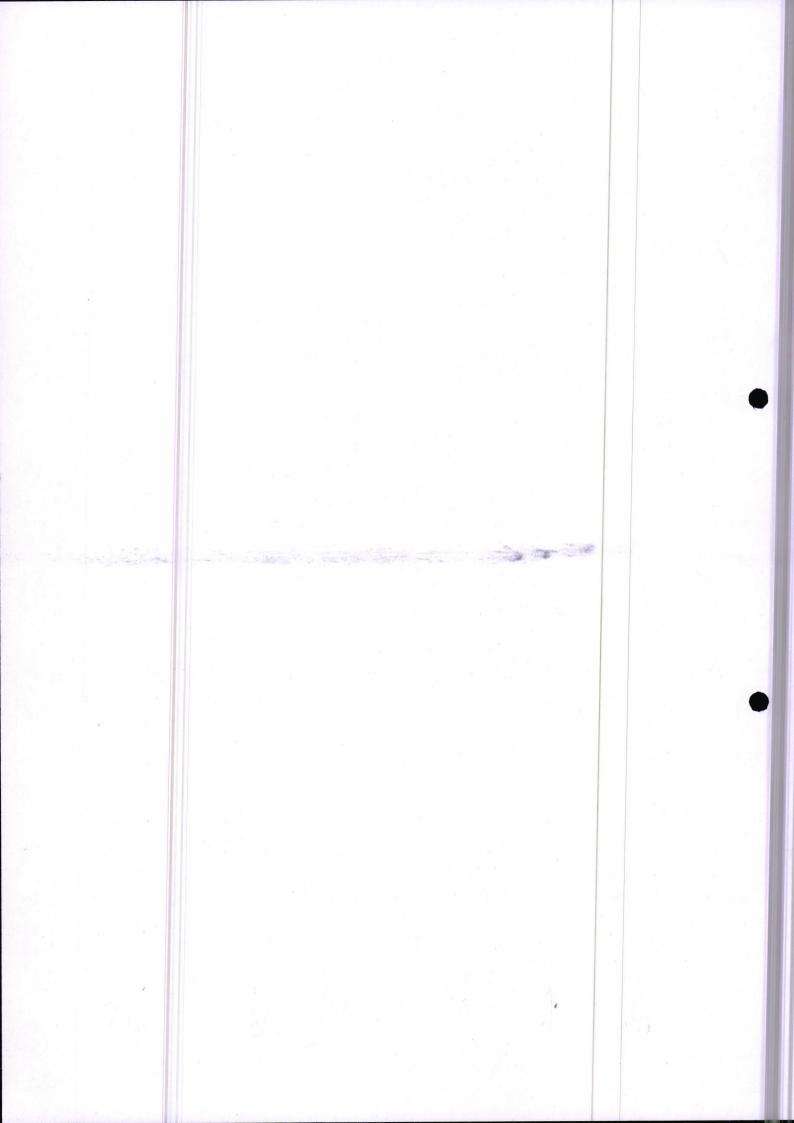
- 1. <u>https://www.ojp.gov/pdffiles1/nij/grants/254340.pdf</u>
- Peter D. Barnett. ETHICS in FORENSIC SCIENCE Professional Standards for the Practice of Criminalistics, CRC press
- 3. Mozayani A and Fisher CP. forensic evidence management from the crime scene to the courtroom. CRC Press Taylor & Francis Group, 2018.
- 4. Baxter E. Jr. Complete crime scene investigation HANDBOOK. CRC Press, 2015



1. Name of the Depar	tment: Forensic Science	ce	Real Section								
2. Course Name	Crime Scene Ethics an	d Evidence		L	Τ	P					
	Management Lab										
3. Course Code	17040304			0	0	4					
4. Type of Course (us	e tick mark)	Core (√)	DSE ()	AEC ()	SEC ()	OE ()					
5. Pre-requisite					~	~					
(if any)	stream.					Every Sem ()					
(II ally)	stream. Frequency Sem () (use tick										
	(use tick marks)										
7. Total Number of L	7. Total Number of Lectures, Tutorials, Practical										
Lectures = 00		Tutorials =)0	Practical	= 52						
8. Course Description	1:										
This practical core cou	arse provides an overvie	ew of the basic	technique	es and pract	ises utilise	d in crime scene					
investigation, includin	g documentation and pr	ocessing, phys	sical and tr	ace evidence	ce recovery	and processing,					
	custody and continuity										
9. Course Objectives			<u> </u>								
	wledge of legal and eth			scene proce	essing.						
	knowledge of process o										
	ctical knowledge of coll										
	aintenance of chain of cu	ustody and evi	dence inte	grity from c	rime scene	to court.					
10. Course Outcomes											
Upon successful comp	letion of this course, the	e student will b	e able to:								
	the practical knowledge										
	ical thinking and proble lytical and scientific rea					gation.					
	ctical approach for colle					1					
11. List of Practicals	ettear approach for conc	cetton and pres		i die pilysie		~ •					
	protection of the crime	scene and eth	ical iccues								
	and don't practice at ci		ical issues.								
	Sketching, note making		hv) the cri	me scene							
	e ethical and environmer				mples.						
	ollecting and preserving										
	ime scene negligence ca										
7. To determine the	he moral and admissible	behaviour of	an expert i	n the court	of law.						
8. To perform a ca	ase study on media effect	ct during crime	e scene inv	estigation.							
	and study the innocence	project.									
12. Books Recommen											
	tt. Ethics In Forensic Sc	ience Professi	onal Stand	lards for the	Practice o	of Criminalistics,					
CRC press											
	nd Fisher CP. Forensic		agement fr	om the crir	ne scene to	o the courtroom.					
CRC Press Tay	lor & Francis Group, 20	118.	,								
	0 1/5	or de	A	1		1 .					
1	d der	the but	1	· · · ·		Lott -					
Br	W			A		A					
Bh	h to	st Ha	ita 1	f.		fool					



1. Name of the D	epartment: Forensic Scien	nces							
2. Course Name Accident Investigations				L	Т	P			
3. Course Code	4	0	0						
4.Type of Course	17040305 e (use tick mark)	Core (1)	DSE ()	AEC	SEC ()	OE ()			
				0					
5. Pre-requisite (if any)	10+2 with Science Stream	6. Frequency (use tick marks)	Even ()	Odd (*)	Either Sem ()	Every Sem ()			
	of Lectures, Tutorials, Pr	acticals	- <u>-</u>	<u> </u>		I			
Lectures = 52		Tutorials = 00	Tutorials = 00			Practical = 00			
8. Course Descri	ption:	<u>·· 1</u>		L					
sites. 9. Course Object	ident. Biomechanics of inju								
	fundamental and necessary	knowledge essential f	or practicin	g solvin	g accidente	Iscenes			
	e a platform to exchange vie	ews and develop the sl	cills to take	up		ii seenes.			
3. Entreprene	eurships and higher studies	in the field of forensic	science.						
	e student's knowledge on in se studies and research stud		l scenes and	present	them in th	e form of			
0. Course Outco		nes.							
Jpon successful o	completion of this course, th	e student will be able	to:						
1. Investigate	e and explain the real time f	orensic issues in accid	ental scenes						
2. Precisely l	hypothesize and reconstruct	the events surroundin	g an accider	ntal scen	e based on	their			
	nking and observation skills		4-1-1-4-°	• •					
4. Collate an	nd describe theoretical, cond d interpret scientific inform	ation for writing revie	tal data in a	condent	investigatio	on ns case			
reports.			w articles, s		innunieatio	113, Case			
1.Unit wise deta	iled content		*						
U nit-1	Number of lectures13	= Title of the unit	t: Motor Ve	ehicle A	ccidents				
Accident scene. S	ources of forensic informati	ion. Eyewitness accou	nts. Extent c	of vehicl	e damage.	Visibility			
onditions. Photos	graphs of accident site. Estin	mation of speed. Tire	marks, skid	marks, s	cuff marks				
J nit – 2	chicles. Abandoned vehicles								
	13		t: Accider	a Analy	315				
Pre-crash movemorition and drag function and drag function.	ent. Post-crash movement. C actor, methods of determini	Collision model. vehic ing drag factor, influer	le and road l nee on braki	kinemat ng dista	ics, coeffic nce, Speed	ient of			
Jnit – 3	Number of lectures = 13	Title of the unit	t: Medico-le	egal Asp	pects of RT	A			
BL	2 h to	off Asto	1 V	··· ·	X	00			



Unit -4	Number of Lectures=13 Title of Unit: Tachographs
Forensic signif	cance of tachograph data. Tachograph charts. Principles of chart analysis. Accuracy of
speed record. T	ire slip effects. Falsification and diagnostic signals. Route tracing.
2.Brief Descr	iption of self-learning / E-learning component
1. <u>https://v</u>	www.emsa.europa.eu/retro/Docs/marine_casualties/annex_13.pdf
2. <u>https://v</u>	vww.hse.gov.uk/pubns/hsg245.pdf
3. <u>https://d</u>	gfasli.gov.in/sites/default/files/inline-files/rlifaridabad_uncovered_pdis201920.pdf
4. <u>https://v</u>	vww.youtube.com/watch?v=MV4DAuR101M
	pgp.inflibnet.ac.in/ahl.php?csrno=16
6. <u>https://c</u>	rive.google.com/file/d/122C9NaIYt5xamwKhiUa2X_tJCvR3x6vE/view
7. <u>https://v</u>	www.nebosh.org.uk/qualifications/nebosh-hse-introduction-to-incident-investigation/
13.Books Reco	mmended
1. T.S. Fe	ry, Modern Accident Investigation and Analysis, Wiley, New York (1988).
2. D. Lov	e, The Tachograph, 2nd Edition, Kogan Page, London (1989).
3. T.L. Bo	han and A.C. Damask, Forensic Accident Investigation: Motor Vehicles, Michie
Butterw	orth, Charlottesville (1995).
4. S.C. Ba	terman and S.D. Batterman in Encyclopedia of Forensic Sciences, Volume 1, J.A. Siegel,
P.J. Sau	kko and G.C. Knupfer (Eds.), Academic Press, London (2000).
5. Kennet	S. Obenski et. al.; "Motorcycle Accident Reconstruction and Litigation", Lawyers &
Judges	Pub. Company. 2011.
2010.	Fricke.; "Traffic Crash Reconstruction", Northwestern University Center for Public Safety
7. Kirk (2	000) Vehicular Accident investigation and reconstruction

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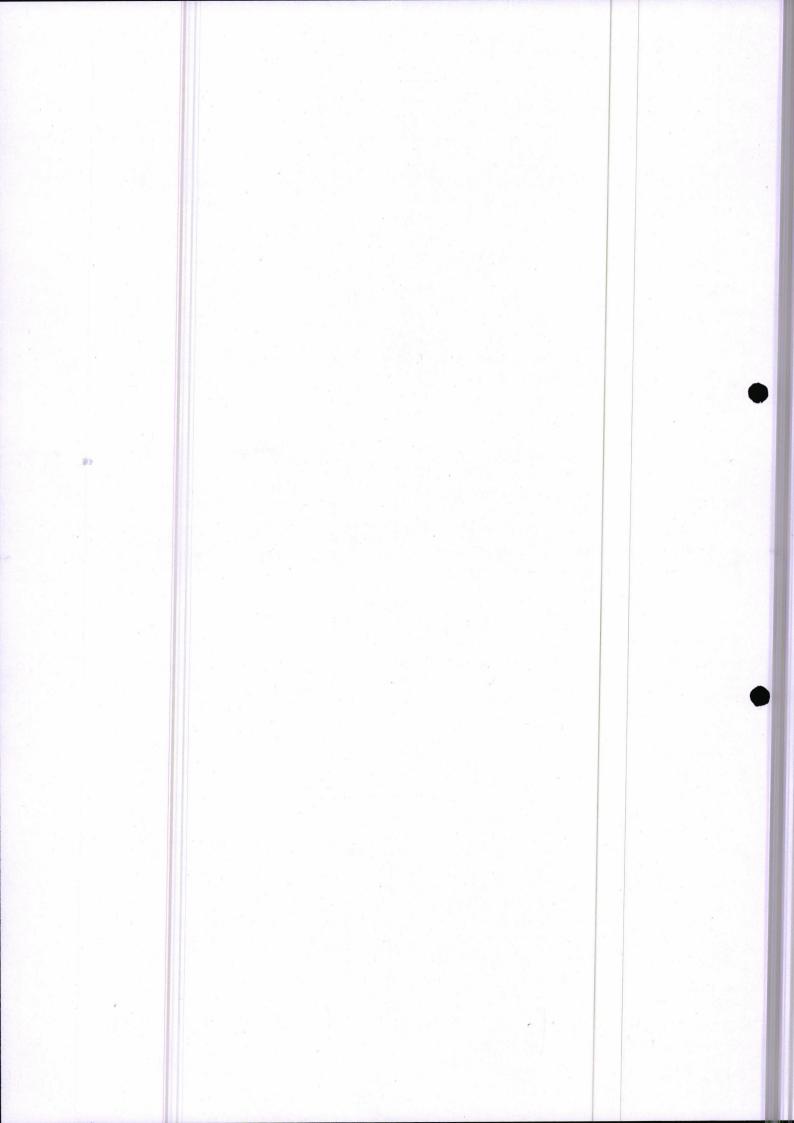
J. BE



1. Nar	me of the Departmo	ent: Forensic Sciences											
2. Course Name Accident Investigations Lab						Т	P						
3. Course Code 17040306						0	4						
4. Typ	pe of Course (use ti	ck mark)	Core (🗸)	DSE	AEC	SEC	OE ()						
		1		0	0	0							
the second s	-requisite	10+2 with Science	6.	Even	Odd	Either	Every Sem ()						
(if an	y)	Stream	Frequency	0		Sem							
			(Use tick			0							
7 Tot	7. Total Number of Lectures, Tutorials, Practical												
	res = 00	ures, Intoriais, Practical	Tutorials =	0.0	Derect	1 50							
			i utoriais –	00	Practi	ical = 52	·						
08. Ca	ourse Description:												
In this	alaboratory course, t	the students will be able to a	apply the know	ledge of	f Accide	ent Invest	tigations for the						
exami	nation of various ski	id marks, scuff marks, hit ar	nd run case and	l collect	ion of e	vidences	in RTA.						
9. Coi	urse Objectives:												
1.	To impart knowled	dge on examination of Road	Traffic Accid	lents To	collect	preserve	e and document						
	evidences found in	RTA cases			presidente de la companya de la comp								
2.	To improve studen	t's knowledge on injuries a	nd legal jurispr	udence	in accid	lental sce	nes and present						
them in the form of reports, case studies and research studies.													
3.	To develop self-le	earning and be aware of re	ecent trends a	nd tech	nologic	al advan	ces in accident						
10 0	investigations.				- (.								
	ourse Outcome					<u></u>							
Opon	successful completio	on of this course, the studen	t will be able to	0:									
1.	Characterize differ	ent tyre marks and skid mar	ko				· · ·						
 Characterize different tyre marks and skid marks Collect and analyse scuff marks and other evidences found in the crime scene 													
3.	Identify the injurie	s caused in RTA cases.			ne seen	-							
4.		use technology in investiga	ting major acc	idents li	ke train	or road a	accidents.						
11. Li	ist of Experiments												
1.	To conduct collect	ion, preservation and examine	nation of tire m	harks.									
2.	To study the patter												
3.	To study the patter												
4.		eed of the vehicle from skid											
5.		es and conduct examination	in hit and run	case.									
6.		t on a major road accident.											
7.		t on a major train accident.											
8.		amine types of Injuries in R	ГA										
	ooks Recommended				1111 11								
						1000							
	2. T.S. Ferry, Modern Accident Investigation and Analysis, Wiley, New York (1988).												
5. 4.	3. D. Lowe, The Tachograph, 2nd Edition, Kogan Page, London (1989).												
ч.	4. T.L. Bohan and A.C. Damask, Forensic Accident Investigation: Motor Vehicles, Michie Butterworth, Charlottesville (1995).												
5.		d S.D. Batterman in Encyclo	nedia of Foren	sic Soio	nces V	olume 1	LA Siggal						
2.	P.J. Saukko and G.	C. Knupfer (Eds.) Academi	c Press Londo	n (200)))	orunie 1,	J.A. Slegel,						
6.	P.J. Saukko and G.C. Knupfer (Eds.), Academic Press, London (2000).Kenneth S. Obenski et. al.; "Motorcycle Accident Reconstruction and Litigation", Lawyers &												
	Judges Pub. Compa	any. 2011.	reconstruc	und und	. Drugat	Join , Lav	vycis œ						
	T		A	1.	1								
		1 ASth	An	M	1.	~~							
	ol	W	, r.		p		IDAA						
	154				×		april						



1. Name of the Depar	rtment: Forensic Scien	ce									
2. Course Name	Smart Device Forensic			L	Τ	P					
3. Course Code	17040401			4	0	0					
4. Type of Course (us	se tick mark)	Core $()$	DSE ()	AFCO	SECO						
5. Pre-requisite	10+2 with Science	6.	Even	AEC () Odd()	SEC () Either	OE ()					
(if any)	stream.	Frequency		Ouu	Sem ()	Every Sem ()					
		(use tick		안전							
		marks)			Sec. 18						
	ectures, Tutorials, Pra	ctical		×	-						
Lectures = 52 Tutorials = 00 Practical = 00											
8. Course Description: This core course will make the students proficient with the latest malware, smartphone operating systems											
This core course will	make the students prof	icient with the	latest ma	ilware, sma	rtphone op	erating systems,					
offers the most unique	s, acquisition shortfalls, and current instruction	extraction tec	hniques (j	ailbreaks a	nd roots) ai	nd encryption. It					
can be immediately ap	ply to forensic cases		uent with	mobile dev	ice forensic	knowledge that					
9. Course Objectives											
Students will be able t	<u>a laama</u> .										
	ey evidence on a smartp	hono or any of	han anaant	daniar							
2. To recover dele	eted mobile device data	with the aid of	forensic t	ools		이번 같은 가슴을 물					
	lence stored in third-part			0013.							
4. To detect, deco	mpile, and analyze mob	ile malware an	d spyware	2							
10. Course Outcomes	(COs):										
1. Disciplinary kr	nowledge of smart device	es operating sy	stems								
2. Gaining the cri	tical thinking about the e	evidences on si	mart devic	es and their	retrieval w	with the help of					
forensic tools a			1								
3. Enhancement of	of Analytical skills of dat	ta acquisition,	detection,	and analyse	es of data ir	n forensic					
investigations.	analyze mobile malwar	e using open a	ouroo tool	2							
11. Unit wise detailed	content	e using open-s		S							
Unit-1	Number of lectures	Title of the	unit. I.	traduction	40 C	t Devices and					
	= 13	Operating Sy		itroduction	i to smar	t Devices and					
Different Types of Sm	art Devices; History of	Smart Phones:	Working	and functio	n of smartr	hones. Android					
operating system; iOS	operating system; Stora	ge Mediums, S	D Cards,	Inbuilt Mer	norv. Cloud	1-based backups					
and storage; Cloud-syr	nced data - Google and n	nore; Mobile d	evices in i	ncident-res	ponse cases						
Unit – 2	Number of lectures					Smartphones					
	= 10										
Types of Malwares and	d spywares; mode of intr	usion and action	on; Detern	nining if ma	lware or sp	yware exist in a					
device; Handling the	isolation of the maly	ware; Decomp	oiling ma	lware to c	onduct in-	depth analysis;					
Determining what has											
Unit – 3	Number of lectures = 16		nit: Forei	isic Exami	nation of Si	martphone File					
Recovering deleted int	formation from smartpho	Systems	a SOL ita	databagag	in daugh D	·					
user activities on smart	phones; Recovering data	from third-na	rty applica	tions: Trac	in-deptn; r	inding traces of					
smartphones (e.g., mes	ssaging and social netwo	orking): Manua	illy decod	ing to recov	er missing	data and verify					
results; Identifying dev	vices that have intentiona	illy been modif	fied - delet	tion, wiping	and hiding	applications					
Unit -4	Number of lectures ='	Title of the				sic Tools and					
	13	Applications									
		0.	11	AN							
1	l d	Seft.	Hor	al M		Att					
Ber		4		CP-		all					
- Y	V*										



Carving data; Developing custom SQL queries; Conducting physical and logical keyword searches; Manually creating timeline generation and link analysis using information from smartphones; Tool validation based on trusted datasets; Using geolocation information from smartphones; Extracting evidence from locked smartphones; Bypassing encryption (kernel and application level); Cracking passcodes; Hot and Cold devices; prevent remote access on the device; mobile device management

12. Brief Description of self-learning / E-learning component

- 1. https://www.youtube.com/watch?v=PW8-TGGAE3o
- 2. https://www.youtube.com/watch?v=9kvh8go jcw
- 3. <u>https://www.youtube.com/watch?v=ftk_5bjpDu0</u>
- 4. <u>https://www.youtube.com/watch?v=iUHgHlhbOMI</u>
- 5. https://www.youtube.com/watch?v=o52Z1x60lBk

13. Books Recommended

- 1. Lee, S., 2022. Mobile Digital Forensics Framework for Smartphone User Analysis. Webology, 19(1), pp.4335-4351.
- 2. Doherty, J., n.d. Wireless and mobile device security.

BE h

- 3. 2010. Test results for mobile device acquisition tool. Washington, DC: U.S. Dept. of Justice, Office of Justice Programs, National Institute of Justice.
- 4. Hoog, A. and McCash, J., 2011. Android forensics. Waltham, MA: Syngress.
- 5. Easttom, C., n.d. In-depth guide to mobile device forensics.
- 6. Bommisetty, S., Mahalik, H., Skulkin, O., Tamma, R. and Mikhaylov, I., 2018. Practical Mobile Forensics. Birmingham: Packt Publishing.



1.Name of the Depar	rtment: Forensic Science					
2. Course Name	Smart Device Forensic	L	Т	P		
3. Course Code	17040402			0	0	4
4. Type of Course (u	se tick mark)	Core (√)	DSE ()	AEC ()	SEC ()	OE ()
5. Pre-requisite	10+2 with Science	6.	DSE () Even(√	Odd()	Either	Every Sem ()
(if any)	stream.	Frequency)	ouuj	Sem ()	Livery Sem ()
		(use tick				병원 이 같은 영영
		marks)				
	Lectures, Tutorials, Pra		St. Jane ?			
Lectures = 00		Tutorials = ()	Practical	= 52	
8. Course Descriptio			1			
This core course will	make the students prof	icient with the	e latest ma	ilware, sma	artphone op	erating systems.
	ns, acquisition shortfalls, e and current instruction					
	pply to forensic cases.	to ann the stu			The forensit	Rilowieuge mai
9. Course Objectives						
Students will be able						
	to learn: v evidence on a smartpho	ne or any other	r smart da	vices		
2 To recover delete	ed mobile device data wit	the the aid of fo	rensic tool	ls		
	nces stored in third-party					
	pile, and analyze mobile		spyware			
			1.			
10. Course Outcome	s (COs):					
1. Disciplinary kn	owledge of smart devices	s operating sys	tems			
	tical thinking about the ev			s and their	retrieval wi	th the help of
forensic tools a						
	f Analytical skills of data	acquisition, o	detection,	and analyse	es of data in	forensic
investigations.						
4. Detect smartphe 11. List of Experime	ones compromised by ma	alware and spy	ware using	g forensic n	nethods	
		2				
• •	ecurity and privacy meas			i a tradi		
	analysing the features of analysing the features iO		ating Syste	em.		
	id enumerating Mobile D		~e			
	the Functioning of SIM					
	Mobile device character					
7. Studying and	understanding various M		ool Classi	fication Sy	stem	
	lanual extraction of data.					
	ogical Extraction of data.					
	the Hex Dumping and J					
	Preservation and Isolation isticated mobile forensic		amuntad Di	ick Dataata	"' DAMC	antuna EAW
	uisition of Websites), VC			isk Delecto	\mathbf{r} , KAM C	apture, FA w
12. Books Recomme			•			
		. Engarran 1. C			A 1	1.1. 10/12
1. Lee, S., 2022. pp.4335-4351.	Mobile Digital Forensics	s r ramework to	or Smartpl	ione User A	analysis. W	ebology, 19(1),
· · ·	d. Wireless and mobile d	evice security				
2. Donorty, 3., 11.	a. Thereas and moone a	, ice security.	Λ	10.		1
	J 15	Sip	10	roi 1	L'	Lat
04	VT V	the			Y	All
192	V				~	0



- 3. 2010. Test results for mobile device acquisition tool. Washington, DC: U.S. Dept. of Justice, Office of Justice Programs, National Institute of Justice.
- 4. Hoog, A. and McCash, J., 2011. Android forensics. Waltham, MA: Syngress.
- 5. Easttom, C., n.d. In-depth guide to mobile device forensics.

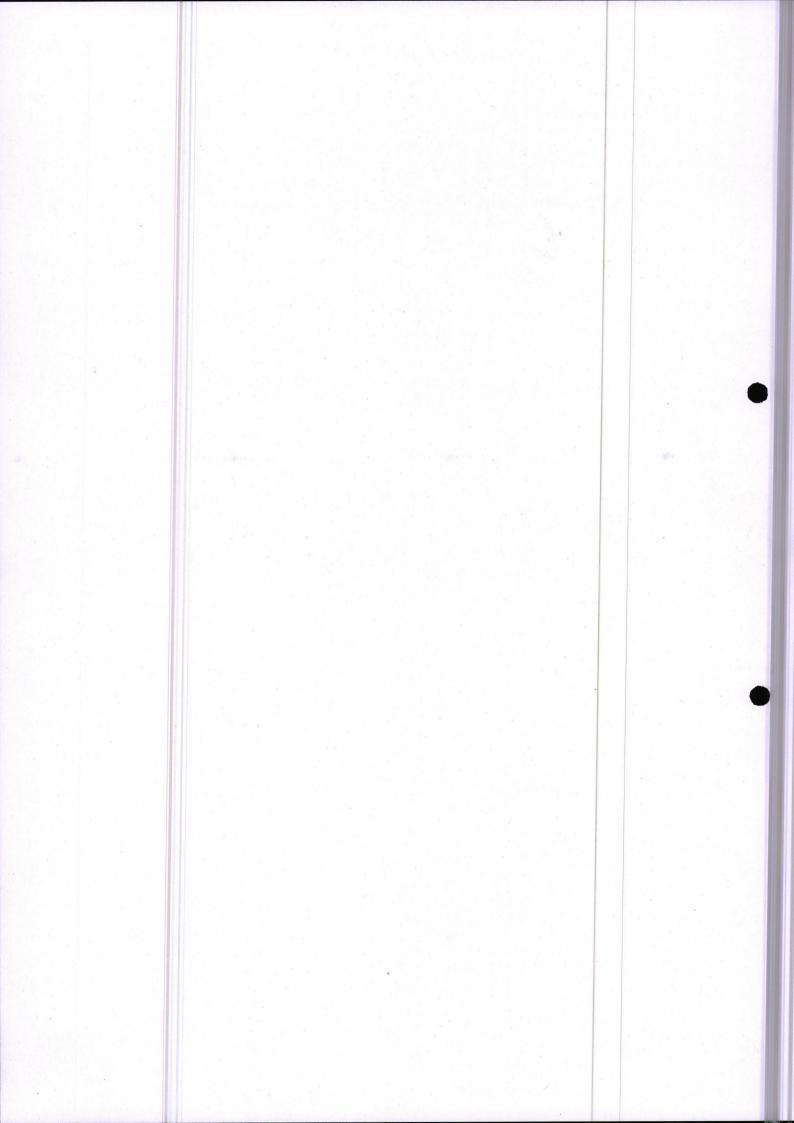
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 Bommisetty, S., Mahalik, H., Skulkin, O., Tamma, R. and Mikhaylov, I., 2018. Practical Mobile Forensics. Birmingham: Packt Publishing.

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2. Course Name	rtment: Forensic Sciene Photography and Its Fo		conce	T	T	D
3. Course Code	17040403	orensic Signifi	cance	L 4	T 0	P
				T	0	0
4. Type of Course (u	,	Core (√)	DSE ()	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even (√)	Odd()	Either Sem ()	Every Sem ()
7. Total Number of I	ectures, Tutorials, Pra				1.1.1	
Lectures $= 52$		Tutorials = ()0	Practical	= 00	
8. Course Description						
correct measurements the crime scene and	notography deals with the e for the law enforcement. This course will enable simultaneously link circ prime scene and how valit	nt to establish e the students to umstantial evi	the location to establis dences. T	on of the c h the locati hey will al	rime and its on of physi so learn th	s perimeter with cal evidences at e importance of
			1	n de la composición d		
 Developing sk To inculcate th Promoting self 	inental knowledge cruci ills to understand the element e qualities for working e elearning by practising the	ments of photo effectively in m	graphy. ulticultura	1		у.
10. Course Outcomes	s (COs):					
 Classify and un Reproduce the 	graphy principles to cond nderstand the exposure tr crucial steps involved in ctures after photography content	iangle. crime scene p	hotograph	V.	ted with cri	me.
Unit-1	Number of lectures: 13	Title of the u	nit: Intro	duction to	Forensic F	Photography
Introduction, Importar	rime scene, principles	of photograph	y, exposu	y, methods re triangle	employed, hue, cont	for conducting
equipment utilized, adi	missibility of evidence in	n the court of la	aw.	1997 - 19		rast and color,
Unit – 2	Number of lectures: 13	the court of la Title of the u	aw. nit: Came	era and its	parts	rast and color,
Definition, history and of pixels, frames per s exposure, ISO, depth o	Number of lectures: 13 development of cameras. econd, resolution, magn if field, different setting if	the court of la Title of the u , camera parts, ification, shutt modes and trip	aw. nit: Came types of ca er speed, od.	era and its ameras, SLI aperture an	parts R and DSL o d their sign	camera concept
Definition, history and of pixels, frames per s	Number of lectures: 13 development of cameras econd, resolution, magn f field, different setting 1 Number of	the court of la Title of the u , camera parts, ification, shutt	aw. nit: Came types of ca er speed, od.	era and its ameras, SLI aperture an	parts R and DSL o d their sign	camera concept
equipment utilized, add Unit – 2 Definition, history and of pixels, frames per s exposure, ISO, depth o Unit – 3 Types of photographs transmitted light, side Photography using scie	Number of lectures: 13 development of cameras, econd, resolution, magn f field, different setting no Number of lectures: 13 taken at the crime scene e light, trick photograp entific equipment, preparts s disciplines of forensic	the court of la Title of the u , camera parts, ification, shutt modes and trip Title of the u ne, importance oby, contact p ration of demon	aw. nit: Came types of ca er speed, od. nit: Crime e, Special print photon nstrative in	era and its ameras, SLI aperture an e Scene Ph ized photog ography, o mages and	parts R and DSL of d their sign otography graphy- UV blique ligh juxta pose of	camera, concept ificance. Image 7, IR, close-up, t photography.



Unit -4	Number of lectures: 13	Title of the unit: Digital Photography
watermarking, and their func	digital imaging, photomicr tion, video standard form	I photography, file formats-jpg, gif, bmp, tiff, raw etc., digita rography, microphotography, Videography-basics of video camera nats, application of videography in police work. CCTV image and its manipulation. Case studies.
12. Brief Desci	iption of self-learning / E	-learning component
	ww.youtube.com/watch?v	
	ww.youtube.com/watch?v	Lass .
3. <u>https://v</u>	ww.youtube.com/watch?v	=AOazriXe6ec
4. <u>https://v</u>	ww.youtube.com/watch?v	=z3h1F99woDU
5. <u>https://v</u>	ww.youtube.com/watch?v	=BsSjEhktkzU
6. <u>https://v</u>	ww.youtube.com/watch?v	=PIaxWT8XobY
7. <u>https://v</u>	ww.youtube.com/watch?v	=phd2vbGw1LI
8. <u>https://v</u>	ww.youtube.com/watch?v	=E54PrUf13ds
9. <u>https://v</u>	ww.youtube.com/watch?v	=hRer5xSP2HQ
	ww.youtube.com/watch?v	
	hotographylife.com/photog	graphy-basics
13. Books Reco		
1. David R 2001.	. Redsicker; "The Practical	Methodology of Forensic Photography", 2nd Ed. CRC Press LLC
2. R.E. Ja Imaging	cobson, S.F. Ray, G.G. A ", N.R. Oxford, 2000.	Attridge; "The Manual of PhotographyPhotographic and Digita

- Allan Matchett; "CCTV for Security Professionals", Elsevier, Butterworth Heinemann, 2003.
 Nick Marsh; "Forensic Photography: A Practitioner"s Guide", 2014.

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20 01	Photography Lab			L	Т	P
3. Course Code	17040404			0	0	4
4. Type of Course (u	ise tick mark)	Core (✓)	DSE ()	AEC ()	SEC ()	OFO
5. Pre-requisite	10+2 with Science	6.	Even			OE ()
(if any)	stream.	Frequency (use tick marks)	Lven (√)	Odd()	Either Sem ()	Every Sem (
7. Total Number of	Lectures, Tutorials, Pra	ctical	n.		1	
Lectures = 00		Tutorials = ()0	Practical	= 52	
8. Course Description	on: bhotography will help stud	A.				
they will inculcate the 9. Course Objective	ve for the student's to have The photographs taken sh e skills required for condu s: ndamental knowledge t	ould be admis acting photogra	sible in the aphy.	e court of la	w. Thus thr	ough this course
 2. Develops skil 3. To inculcate t 4. Promoting sel 	ls to understand the ambie he qualities for working e f-learning through practis	ent light requir	ed for con ulticultur	ducting ph	otography	
10. Course Outcome	es (COs): he course the student will	8				
 Classify and u Recognize the Analyze the b List of experiment To understand 	the exposure triangle thr	and equipment ocuments and	used in pl			gh photographs.
 To understand To identify, m To conduct cri 	the parts of a DSLR. easure and conduct photo me scene photography (o otography of outdoor crir	graphy of a ro verall, mid-rar	ad.	ose-up).		
J. To conduct ph	atography of indeen anim	e scene.				
 To conduct ph To take photog To conduct Cr To manipulate 	graphs of currency notes a ime Scene Videography. and identify a document/	nd other docu	gitally.			
 To conduct ph To take photog To conduct Cr To manipulate To conduct phe 2. Books Recomment DFSS Lab 	graphs of currency notes a ime Scene Videography. and identify a document/ otographs with scale of tranded	ind other docu photograph di ace and latent(gitally. post devel	opment) ev		



2. Course Name Psychology and Crin	ninology		L	Т	P
3. Course Code 17040405			4	0	0
4.Type of Course (use tick mark)	Core (✓)	DSE ()	GE ()	SEC ()	
5. Pre-requisite 10+2 with Scie (if any) stream	ence 6. Frequency (use tick marks)	Even (✓)	Odd O	Either Sem ()	Every Sem ()
7. Total Number of Lectures, Tutoria	ls, Practicals			2	
Lectures = 52	Tutorials =	00	Practi	cal = 00	
8. Course Description:					1
relationship between psychology and c various theories, causes and types of cri 9. Course Objectives:	riminal behaviou mes and tools use	r. They will a d for detection	also be n in case	able to get es of decept	knowledge abou ion.
3. Course Objectives.					
 To understand the relationship l To study various theories relate To understand the application psychology. 	d to cause of crim	e along with a	different	types of cr	
10. Course Outcomes (COs):					
Upon successful completion of this cour	rse, the student wi	Il be able to:	100		
 Understand and explain the cond Develop critical thinking skills f Understand the theories associat Summarize the importance and r tools and techniques required for Unit wise detailed content 	for assessing the part ed with crime and reports of psychological	sychology beh criminal beha gical assessm	nind crin aviour	ninal behav	iour.
Unit-1 Number of lectures	=13 Title of the	unit: Basics	of Fore	nsic Psych	ology
Definition and fundamental concepts of Ethical issues in forensic psychology. psychology. Psychology of evidence Psychology in the courtroom, with spec	f forensic psycholo Assessment of m – eyewitness test ial reference to Sec	ogy and forer ental compete imony, confe ction 84 and 8	nsic psyc ency. M ession e 35 of IP(chiatry. Psy lental disor vidence. C C.	chology and law ders and forension riminal profiling
Unit – 2 Number of lectures	=13 Title of the	unit: Psych	ology a	nd Crimin	al Behaviour
Psychopathology and personality disord Psychology of terrorism. Introduction of Political, Culture, and Geographical and	of Victimology. C I their prevention.	auses of crim Juvenile Deli	e. Socia	ıl, Economi	ic, Psychological
Unit- 3 Number of lectures=	=13 Title of Unit	t: Introduction	on to Ci	iminology	and its theories
Criminology –Definition Nature and Criminology-Classical School and Posit collar crime, Organized crime, Terroris	tive School, Crime sm, Theory of Cr	e Typologies iminology-Di	and The fferentia	ories of Cri al Associati	iminology: White
Concept and Containment theory, Lab Abortion, Rape, Sexual Abuse of Child.	belling theory, Ba	rrier Theory.	Sexual	Offences-	Prostitution and



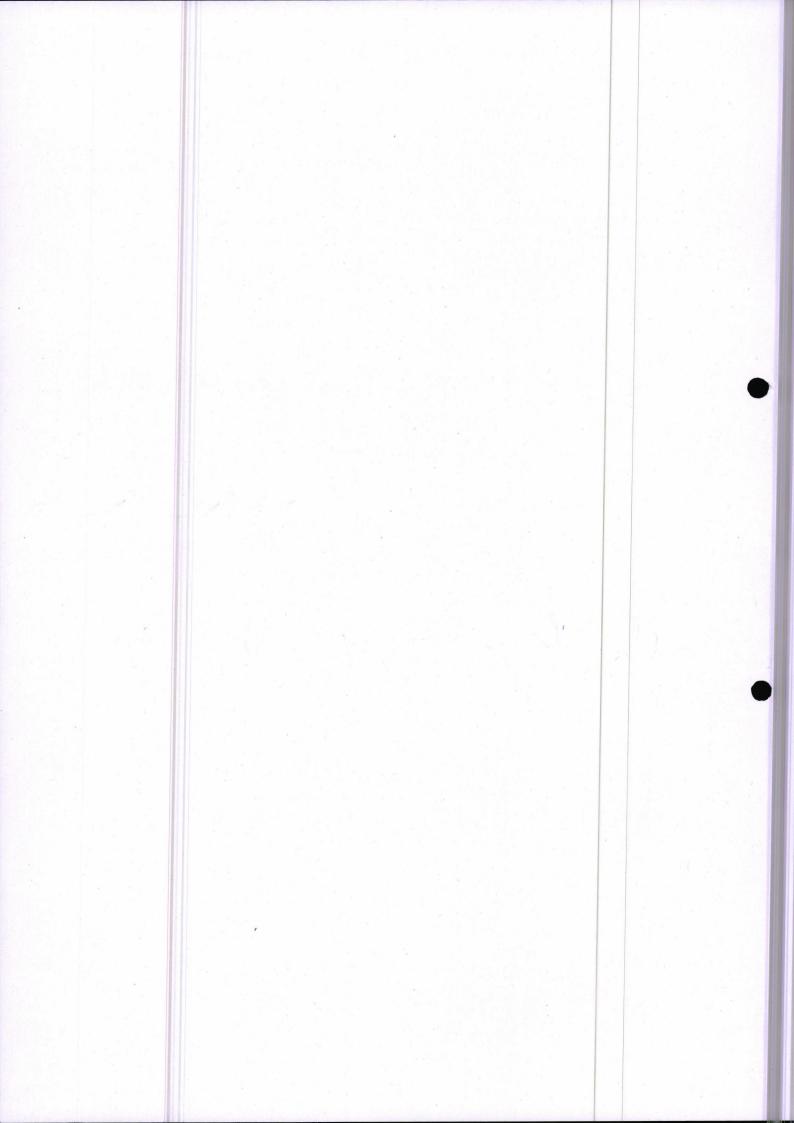
Unit –	4 Number of lectures=13 Title of Unit: Detection of Deception
Tools	for detection of deception – interviews, non-verbal detection, statement analysis, voice stress analyzer
(VSA),	Hypnosis. Polygraphy – operational and question formulation techniques, ethical and legal aspects
the gui	ty knowledge test. Narco analysis and brain electrical oscillation signature (BEOS) - principle and
theory,	ethical and legal issues.
12. Bri	ef Description of self-learning / E-learning component
1.	https://www.youtube.com/watch?v=HMPIvOUvqPA
	https://www.youtube.com/watch?v=z_4tvjT-Q88
	https://www.youtube.com/watch?v=t3yzPbeBXGQ
	https://www.youtube.com/watch?v=wYTmbpaiYYU
	https://www.youtube.com/watch?v=tpJcBozuF6A
	https://www.youtube.com/watch?v=XDkVnHG6WDQ
7.	https://www.youtube.com/watch?v=tdaqqlFQdTE
	https://www.youtube.com/watch?v=ei5n_MK_KTQ
13. Boo	oks Recommended
1.	AldertVrij. Detecting Lies and Deceit: Pitfalls and Opportunities (2nd ed). Wiley, 2008. Brent Turvey.
	Criminal profiling: An Introduction to Behavioral Evidence Analysis. Academic Press, 2011.

- 2. C.R. Mukundan. Brain Experience: Neuroexperiential Perspectives of Brain-Mind. Atlantic Publishers & Distributors (P) Ltd., 2007.
- 3. David A. Crighton & Graham J. Towl. Forensic Psychology (2nd ed).. Wiley, 2015.
- 4. Irving B. Weiner & Randy K. Otto. The Handbook of Forensic Psychology (4th ed). Wiley, 2010.
- 5. Murray Kleiner. Handbook of Polygraph testing (1st ed). Academic Press, 2001.
- 6. Nathan J. Gordon. Essentials of Polygraph and Polygraph testing (1st ed). CRC Press, 2016.
- 7. Sandie Taylor. Forensic Psychology-The Basics. Routledge, 2015
- 8. William O'Donohue & Eric Levensky. Handbook of Forensic Psychology (1st ed). Academic Press, 2003.
- 9. Rama Ahuja. Criminology. Prabhat Prakashan, 2000.

10. Edwin Hardin Sutherland & Donald R Cressey. Criminology, Philadelphia, Lippincott, 1974.

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1. Name of the De	epartment: For	ensic Science	and the second	Property New		
2. Course Name	Psychology and Criminology Lab			L	Т	P
3. Course Code				0	0	4
4. Type of Course (use tick Core (\checkmark)			DSE ()	AEC ()	SEC ()	OE ()
mark)						
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even (√)	Odd ()	Either Sem ()	Every Sem ()
7. Total Number	of Lectures, T	utorials, Prac	ticals			
Lectures = 00		Tutorials = ()0	Practical =	= 52	
9 Course Desert						

8. Course Description

In the course, the students will learn about relationship between crime and psychology of the criminal. They will also be able to review and prepare reports on different types of cases in which psychology of a criminal played a crucial role. Students will also be able to perform certain tests to determine the psychological status of a suspect or criminal.

9. Course Objectives

- 1. To study various crime cases depicting relationship between crime and psychology of an individual.
- 2. To understand various theories related to cause of crime along with different types of crime
- 3. To understand the applications of polygraphs and brain mapping in the aspects of criminal investigation.
- 4. To gain practical exposure on various advanced instrumental techniques for detection of deception

10. Course Outcomes (COs):

Upon successful completion of this course, the students will able to

- 1. Develop critical thinking skills to understand the psychology of a victim or suspect.
- 2. Collate and interpret the case findings for writing reports.
- 3. Gain knowledge about real time crime cases related to psychological behaviour of a person
- 4. Apply scientific reasoning in cases related to forensic psychology

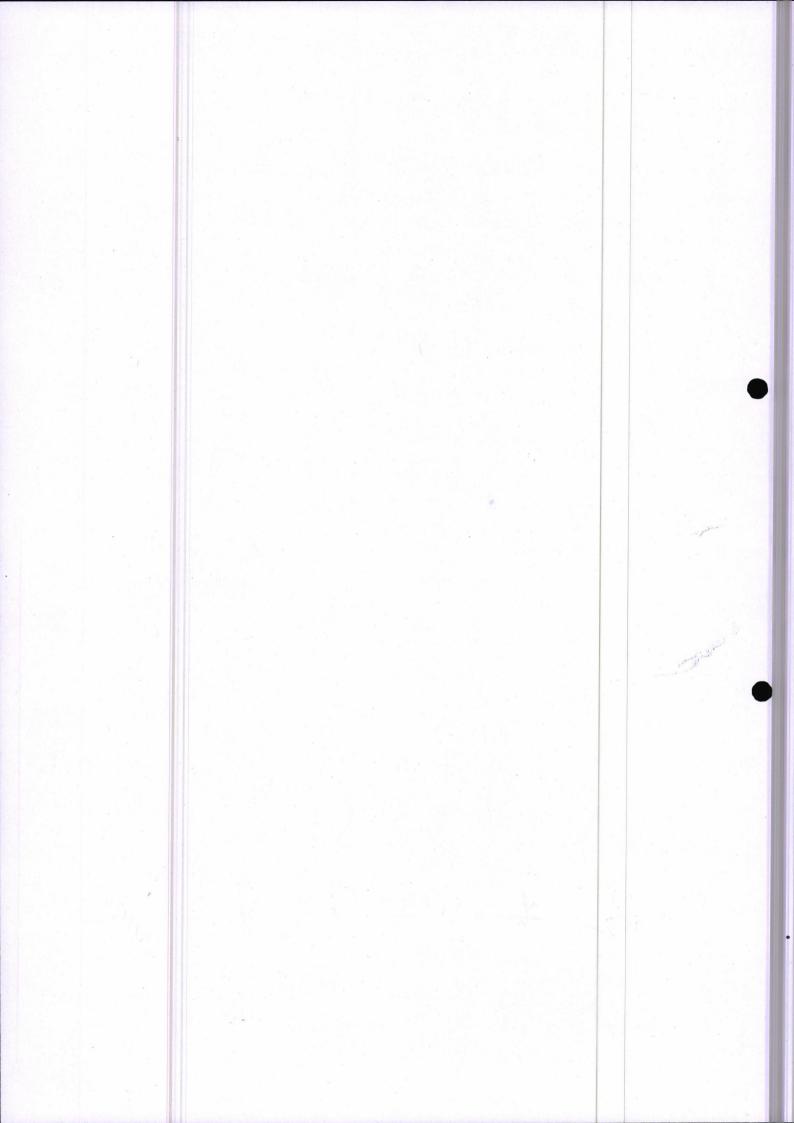
11.List of Experiments

- 1. To cite a crime case where legal procedures pertaining to psychic behaviour had to be invoked.
- 2. To prepare a report on relationship between mental disorders and forensic psychology.
- 3. To review a crime case involving serial murders. Comment on the psychological traits of the accused.
- 4. To cite a crime case involving a juvenile and argue for and against lowering the age for categorizing an individual as juvenile.
- 5. To study a criminal case in which hypnosis was used as a means to detect deception.
- 6. To study a case supporting the theories of criminology.
- 7. To review a crime case involving organized crime.
- 8. To review a crime case involving juvenile delinquency.
- 9. To cite a criminal case in which narco analysis was used as a means to detect deception.
- 10. To cite a criminal case in which polygraph test and brain mapping was used as a means to detect deception.

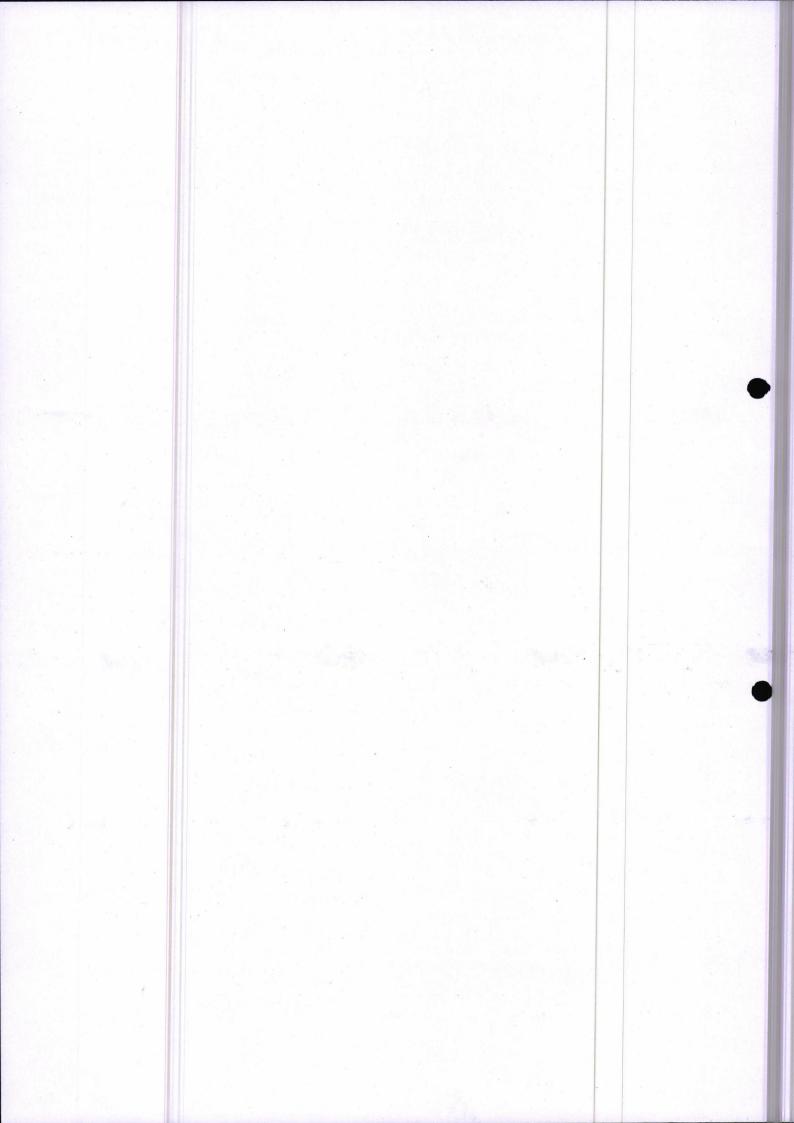
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12. Books Recommended

1. DFS Manuals of Forensic Science



7 Course Man	epartment: For				T	-	-
2. Course Name 3. Course Code	Adulteration in 17040501	Ealble Ite				T	P
		<u> </u>	A	DODO	4	0	0
4.Type of Course		the second s	Core (✓)	DSE ()	GE ()		
5. Pre-requisite (if any)	10+2 with stream	Science	6. Frequency (use tick marks)	Even ()	Odd (✓)	Either Sem ()	Every Sem ()
7. Total Number	of Lectures, Tu	itorials, P					
Lectures = 52			Tutorials =	00	Practi	cal = 00	
8. Course Descri	ption:						
In this core paper difference betwee be made acquainte	n adulterants and	additives.	, types of addi	tives and ac	lulterants	used. The s	edible item students wil
9. Course Object	ives:						
1. To unders	tand the concept	t of adulter	ation in food	articles			
2. To unders	tand about addit	ives, its ty	pes and use in	edible item	ns.		
3. To gain k	nowledge about	examinatio	on of adulterar	nts in edible	items.	al dia	
4. To becom	e well versed wi	th various	laws related to	o adulteratio	on of edib	ole items.	
10. Course Outco	omes (COs):						
Upon successful c	ompletion of thi	s course, tl	he student will	be able to:			
•	1						
 Understand Develop control items 	d and explain the d the theories ass ritical thinking s	sociated wi kills for ex	ith additives an additives an additive and a second s	nd its uses. level of adu	lteration	in differen	t types of e
to it.	e the importance	and report	s on adulterati	on in accord	lance to v	arious acts	and laws re
11. Unit wise deta	ailed content						
Unit-1	Number of lect	turos-12	Title of the n	mite Food	and Ada	14	
Introduction to add			Title of the u	of adultorat	and Adu	monodult	conta in 1:00
edible items, Che	ap substitutes, s Grain, Sugar, S	poiled par pices and c	ts. Means of a condiments, Pr	adulteration	, Adulter	ants in the	following
articles: Milk, Oil, side-effects of adu	lteration, and its	forensic s	ignificance.	Â.			,
articles: Milk, Oil, side-effects of adu Unit – 2	Iteration, and its Number of lect	forensic s tures=13	ignificance. Title of the u	nit: Add	itives		
articles: Milk, Oil, side-effects of adu Unit – 2 Introduction to ad antioxidants, chela flour improvers, h control agents, sta artificial colours,	Iteration, and its Number of lect ditives, types of tting agents, colo umectants and an bilizers and thicl Artificial flavou	forensic s tures=13 additives: puring agen nti-caking a ceners. Rai rs, FDA gu	ignificance. <u>Title of the u</u> nature and cha nts, curing age agents, nutrier sing agents – 1 idelines, prese	nit: Add racteristics nts, emulsion t supplement types and the ervatives-pe	itives and use cons, flavo ons, flavo onts, non-i neir role in ermitted a	of additives urs and flav nutritive sw n food proc nd non-per	in food suc your enhance reeteners, p essing., mitted, colo
articles: Milk, Oil, side-effects of adu Unit – 2 Introduction to add antioxidants, chela flour improvers, h control agents, sta artificial colours, and other chemica	Iteration, and its Number of lect ditives, types of tting agents, colo umectants and an bilizers and thicl Artificial flavou	forensic s tures=13 additives: puring agen nti-caking a ceners. Rai rs, FDA gu	ignificance. <u>Title of the u</u> nature and cha nts, curing age agents, nutrier sing agents – 1 idelines, prese	nit: Add racteristics nts, emulsion t supplement types and the ervatives-pe	itives and use cons, flavo ons, flavo onts, non-i neir role in ermitted a	of additives urs and flav nutritive sw n food proc nd non-per	in food suc your enhance reeteners, p essing., mitted, colo
articles: Milk, Oil, side-effects of adu Unit – 2 Introduction to ada antioxidants, chela flour improvers, h control agents, sta artificial colours, and other chemica Health.	Iteration, and its Number of lect ditives, types of ating agents, colo umectants and an bilizers and thick Artificial flavou ls used in edible	forensic s tures=13 additives: ouring ager nti-caking a ceners. Rai rs, FDA gu items and	ignificance. Title of the u nature and chan nts, curing age agents, nutrier sing agents – the nidelines, present their harmful	nit: Add racteristics nts, emulsion at suppleme types and the ervatives-per effects. Ger	itives and use cons, flavo onts, non-in heir role in ermitted a heral Impa	of additives urs and flav nutritive sw n food proc nd non-per act of addit	in food suc your enhance reeteners, p essing., mitted, colo ives on Hun
articles: Milk, Oil, side-effects of adu Unit – 2 Introduction to add antioxidants, chela flour improvers, h control agents, sta artificial colours, and other chemica	Iteration, and its Number of lect ditives, types of uting agents, colo umectants and an bilizers and thick Artificial flavou Is used in edible Number of lect ality and assess	forensic s tures=13 additives: ouring agernati-caking a ceners. Rai rs, FDA gui items and tures=13 ment of e	ignificance. Title of the u nature and chan nts, curing age agents, nutrier sing agents – the idelines, present their harmful Title of Unit: dibles like m	nit: Add racteristics nts, emulsion t supplement types and the ervatives-pent effects. Ger Examinat ilk and mi	itives and use cons, flavo ons, flavo onts, non-r neir role in ermitted a neral Impa ion of Ac lk produ	of additives urs and flav nutritive sw n food proc nd non-per act of addit lulteration cts, fruits	in food suc your enhance recteners, p essing., mitted, colo ives on Hun in edibles and vegeta



and quantitative methods for detection and examination of various adulterants in edible items i.e. colour tests, chromatographic and spectrophotometric techniques.

Unit – 4 Number of lectures=13 Title of Unit: Laws related to adulteration

Prevention of Food Adulteration Act 1954. Food Safety and Standards Act 2006 (FSSA): Provisions under FSSA, Food Safety and Standards (Licensing and Registration of Food Businesses) Regulation, 2011, Food Safety and Standards (Packaging and Labelling) Regulation, 2011, Food Safety and Standards (Laboratory and Sampling Analysis) Regulation, 2011, Food Safety and Standards (Food Product Standards and Food Additives) Regulation, 2011. Section 272 and 273 IPC. Role of voluntary agencies: Agmark, I.S.I.

12. Brief Description of self-learning / E-learning component

- 1. https://www.youtube.com/watch?v=duXdyAeh-Bs
- 2. https://www.youtube.com/watch?v=10BthUI_MMA
- 3. https://www.youtube.com/watch?v=V4Xw6i6W6Yo
- 4. <u>https://www.youtube.com/watch?v=Pz6i1EMc6mo</u>
- 5. <u>https://www.youtube.com/watch?v=e-UKv6TA-G0</u>
- 6. <u>https://www.youtube.com/watch?v=2GbJdwdGGDs</u>
- 7. https://www.youtube.com/watch?v=ue9cE7YdjNU

13. Books Recommended

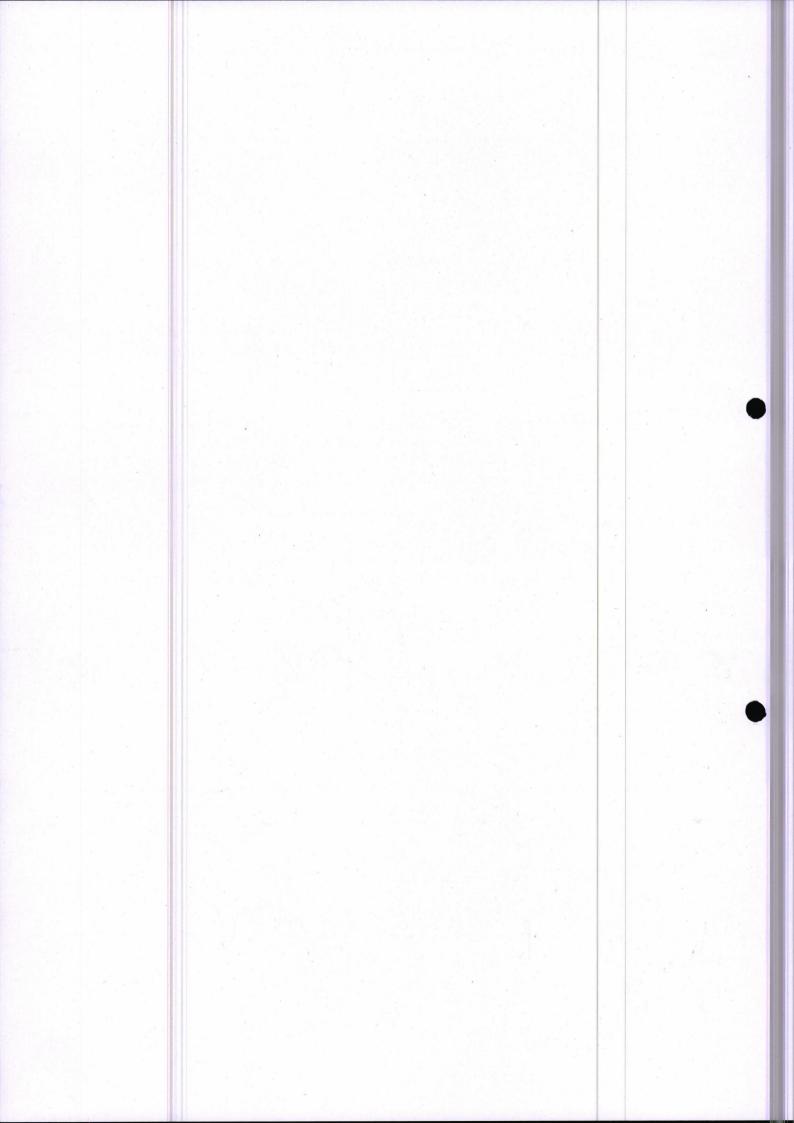
1. H.D. Belitz: Food chemistry, Springer, 1999.

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- 2. R.J. Taylor: Food Additives, Wiley-Blackwell, 1980
- 3. Patricia and Curtis A, An operational Text Book, Guide to Food Laws and Regulations, Wiley-Blackwell, 2005)
- 4. The Food Safety and Standards act, 2006 along with Rules & Regulations 2011

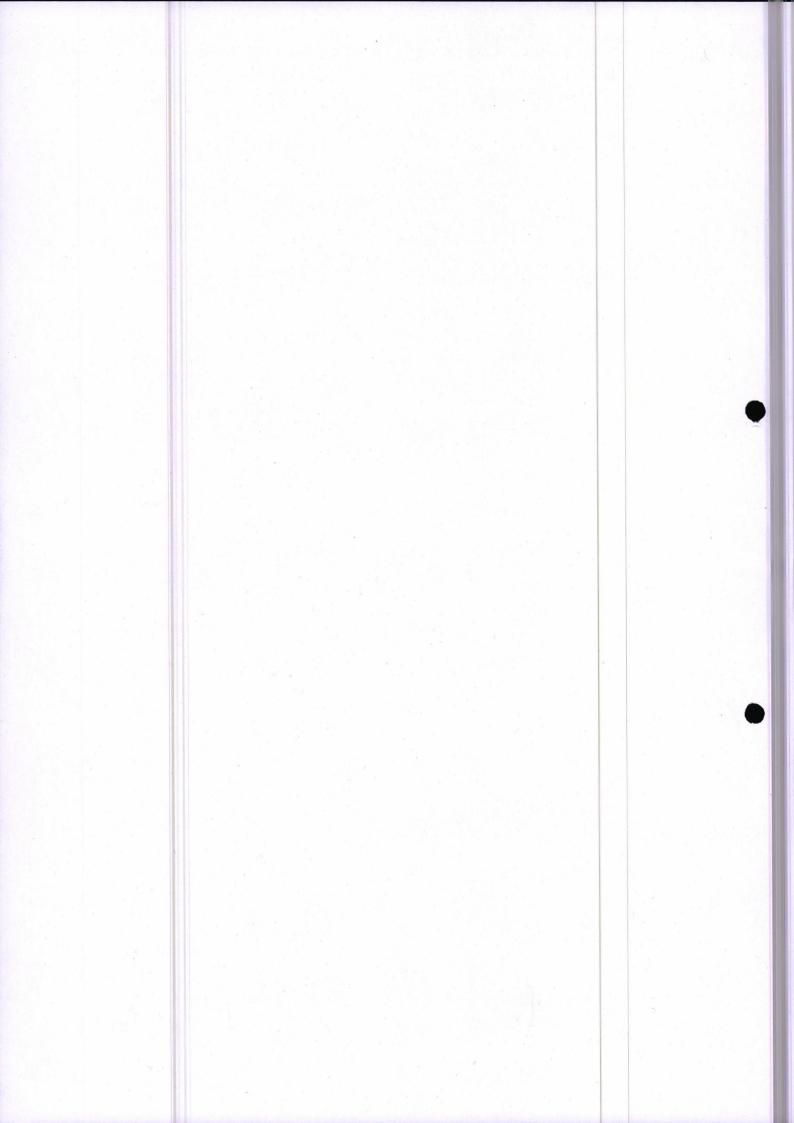


2. Course Name	Adulteration	in Edible Items	s Lab	L	Τ	P
3. Course Code	17040502			0	0	4
4. Type of Course (use tick Core (✓) DSE () mark)				AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even ()	Odd (✓)	Either Sem ()	Every Sem
7. Total Number	of Lectures, T		ticals			
Lectures = 00		Tutorials = 0		Practical =	= 52	
8. Course Descrip	otion					
articles. It will giv tems.		edge about var	ious types a	adulterants ar	additives	used in variou
9. Course Objecti		1				
		alysis of food a				
2. To conduct 3. To gain pra	quantitative a	nalysis for dete	ction of adu	uteration in e	dible items	etection of adul
4. To understa	and the examin	ation procedure	e for detection	on of non-per	mitted addi	tives and preser
				per per	and a data	a ves une preser
10. Course Outco	mes (COs):					
			1. A			
Upon successful c	ompletion of th	nis course, the s	students will	l able to		
1. Investigate	the real time f	orensic issues 1	related to fo	od adulteratio		
1.Investigate2.Critically a	the real time f nalyse the situ	orensic issues a ations related to	related to fo o food adult	od adulteration and u		ermitted additiv
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2. Course Name	Forensic Ballistics			L	Т	P
3. Course Code	17040503			4	0	0
4. Type of Course		Core	DSE ()	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science Stream	6. Frequen	Even O	Odd (√)	Either Sem ()	Every Sem ()
		cy (use tick marks)				
7. Total Number of	of Lectures, Tutorials,	,	1			
Lectures $= 52$,	Tutorials	= 00	Practical =	= 00	
8. Course Descrip	tion:			Tractical	00	
ballistic evidences topics. 9. Course Objecti	ng mechanisms, Types of at the scene of crime, too ves: disciplinary knowledge	ols and techni	ques used	in Forensic	Ballistics a	and other relate
 To understa To develop 	and the basics of firearm the conceptual knowled al ballistics.	s, their classi	fications a	and firing me	echanism.	nternal, extern
		construction a	and ethical	l reporting o	f firearm re	elated cases.
4. To develop 10. Course Outco	understanding about red		× 4		f firearm re	elated cases.
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stat



Defining Ammunition. Types of ammunition. Constructional features and characteristics of different types of cartridges and bullets. Primers and priming compounds. Propellant charges and compositions. Projectiles. Class and Individual Characteristics of fired cartridge cases and bullets. Headstamp markings on ammunition. Different types of marks produced during the firing process on cartridge – firing pin marks, breech face marks, chamber marks, extractor and ejector marks, rifling marks, and individual striations.

Unit – 4	Number of lectures =	Title of the unit: Firearm, related Evidences, and	
	13	Techniques	

Identification and comparison of bullets and cartridge cases. Techniques for identification. Improvised, and country made firearms. IBIS, Determination of range of fire. Accidental Discharge. GSR analysis. Reconstruction with respect to accident, suicide, murder and self-defence. Forensic Report writing.

12. Brief Description of self-learning / E-learning component

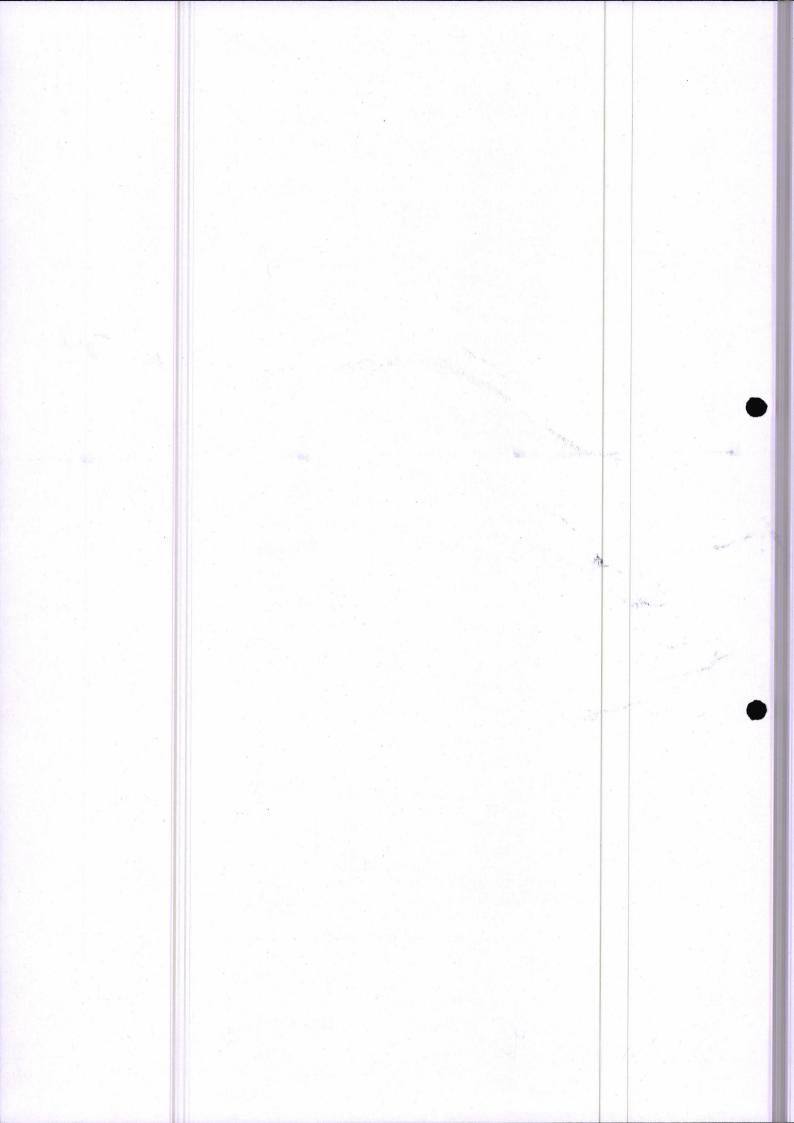
- 1. <u>https://www.youtube.com/watch?v=3kXNIoGUshs</u>
- 2. <u>https://www.youtube.com/watch?v=jietpKOrTJA</u>
- 3. <u>https://www.youtube.com/watch?v=7GVTV6oA6fk</u>
- 4. <u>https://www.youtube.com/watch?v=yCxBxbT5mkI</u>
- 5. <u>https://www.youtube.com/watch?v=1_ILUNXvecM</u>
- 6. <u>https://www.youtube.com/watch?v=Jd3o1nuvcrI</u>
- 7. <u>https://www.youtube.com/watch?v=2qVQmnFKb8o</u>
- 8. <u>https://www.youtube.com/watch?v=rPYTQIFNk5Q</u>
- 9. https://www.youtube.com/watch?v=hNmX7Ybli1o

13. Books Recommended

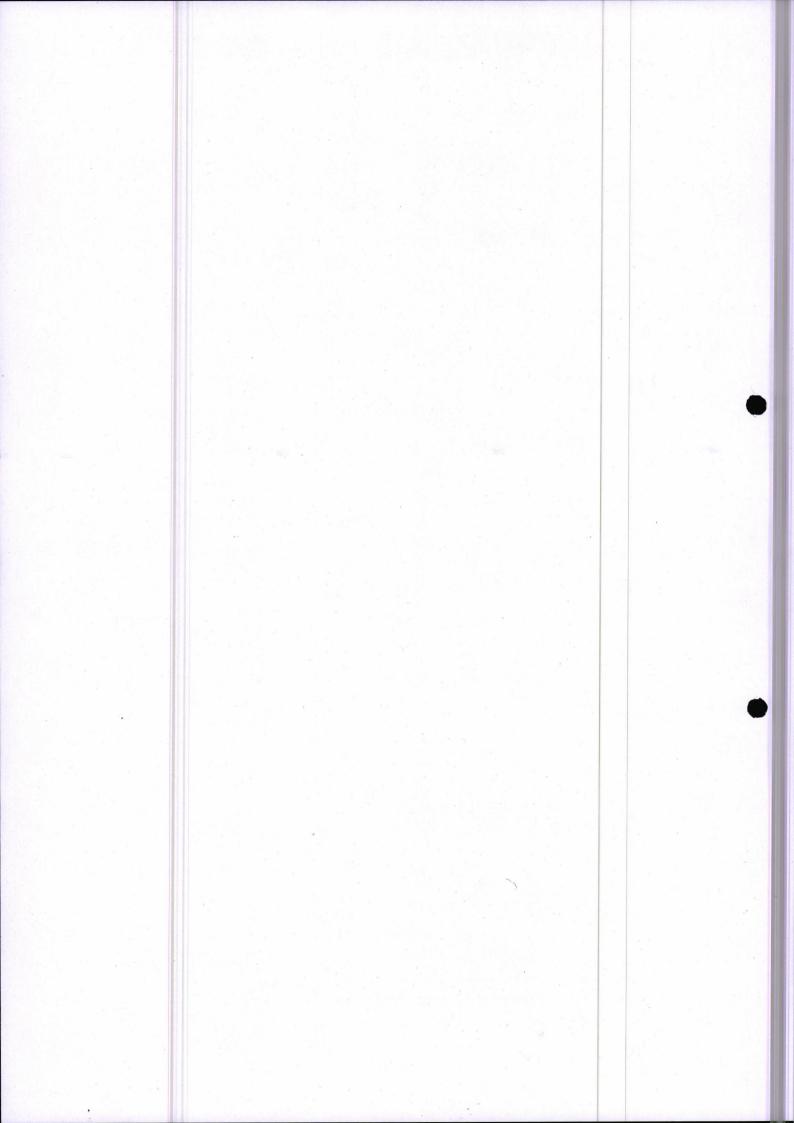
- 1. B.J. Heard, Handbook of Firearms and Ballistics, Wiley and Sons, Chichester (1997).
- 2. W.F. Rowe, Firearms identification, Forensic Science Handbook, Vol. 2, R. Saferstein (Ed.), Prentice Hall, New Jersey (1988).
- 3. A.J. Schwoeble and D.L. Exline, Current Methods in Forensic Gunshot Residue Analysis, CRC Press, Boca Raton (2000).
- 4. E. Elaad. Encyclopedia of Forensic Science, Volume 2, J.A. Siegel, P.J. Saukko and G.C. Knupfer (Eds.), Academic Press, London (2000).
- 5. Sharma, B.R., Firearms In Criminal Investigation & Trials, Universal Law Publishing, 6th Edition (2020).



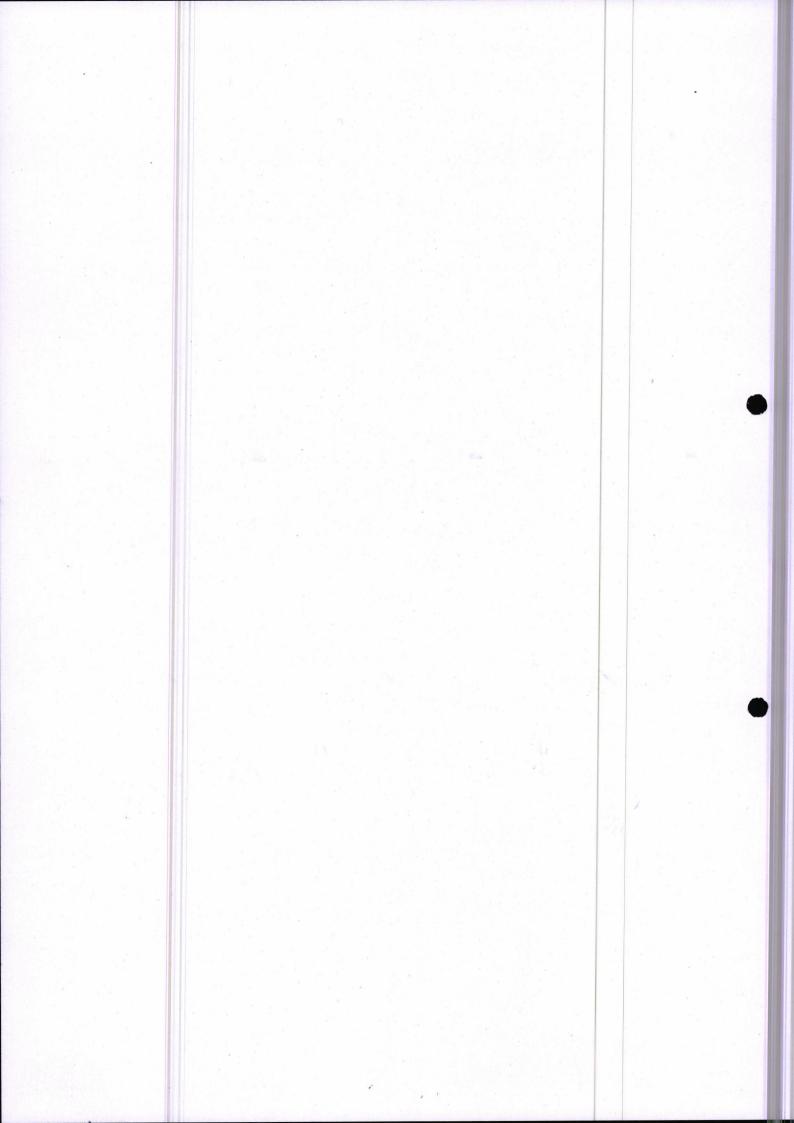
	Forensic Ba	Forensic Ballistics Lab			Τ	Р
3. Course Code	17040504			L 0	0	4
4. Type of Course mark)	(use tick	Core (✓)	DSE ()	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream	6. Frequency (use tick marks)	Even ()	Odd (√)	Either Sem ()	Every Sem ()
7. Total Number of	of Lectures, T	utorials, Practical	l's			
Lectures = 00		Tutorials = 00		Practical =	= 52	
8. Course Descrip	tion:					
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 To unders cartridge c To examin To study th 	tand the firin ase and bullet the firearm a ne nature of fin	pes and parts of fir g mechanism, fund s during firing. and related evidence rearm injuries, GSR	ctioning o	ered at the s	cene of crim	ne.
10. Course Outcon		of this course the stu				
11. List of Experin	nents	the fired cartridge				
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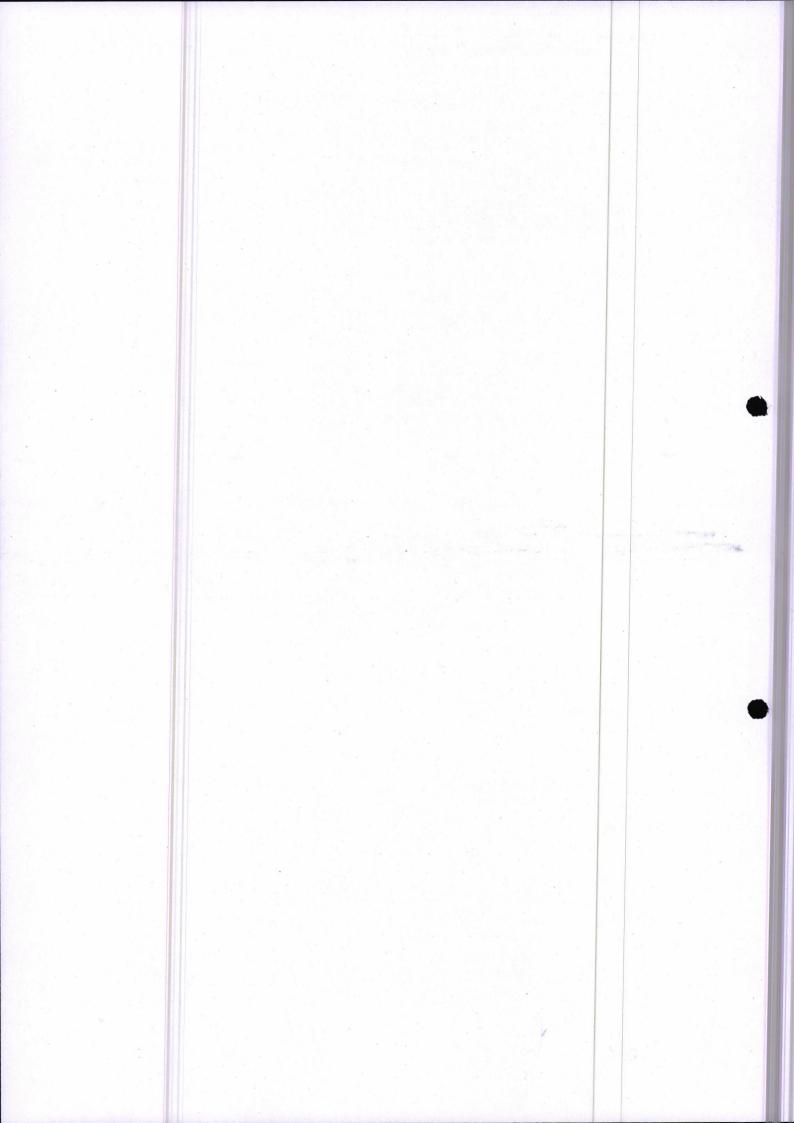
1. Name of the De 2. Course Name	Forensic Bio			L	Т	Р
2 Comme Colo	17040505			2 - X		
3. Course Code 4.Type of Course		17040505		4	0	0
mark)	(use fick	Core ()	DSE (✓)	GE ()	SEC ()	
5. Pre-requisite (if any)	10+2 with science stream	6. Frequency (use tick marks)	Even ()	Odd (✓)	Either Sem ()	Every Sem ()
7. Total Number of	f Lectures, Tu	torials. Practicals				
Lectures = 52		Tutorials = 00		Practical =00		
8. Course Descript				×.		
This paper in Foren biological and serve entomological evid	ological eviden	ce. Importance of	biological	w about evidenc	the basic ki es like hai	nowledge of r, fibre and
9.Course Objectiv						1.
evidences. 2. To provide entrepreneu 3. To improve in the form 4. To develop forensic bio 10. Course Outcor After the successfu 1. Investigate a 2. Precisely hy biological sp 3. Analyse and biological at 4. Collate and	a platform to ex rships and higher student's know of reports, case self-learning an logy nes (COs): l completion of and explain prese pothesize and re pecimens. l describe theore nd serological e interpret scienti tions, case repor	sence of biological econstruct the even etical, conceptual a vidences fic information for	develop the ld of forens ing biologic h studies. nt trends and lents will ab evidences its surround nd experime	skills to ic science cal specir d technol d technol de to:	take up e. nens and pr ogical adva	esent them nces in
Unit-1	Number of lectures = 13	Title of the unit-	Biological	Evidenc	e	
Nature and importa and recovery of hai and biochemistry o leaves, pollens and Unit – 2	nce of biologica r evidence. Strue f human hair. C	cture of human hair	r. Comparis an and anin	on of hai nal hair.	r samples. N Identificatio	Aorphology
	lectures = 13					
Fundamentals of v Identification of phy various animals. Of	ysical evidence	pertaining to wildli	ife forensics	. Identifi	cation of pi	ig marks of
B. 2 Jose	h	HSege.	A	Aa	V	



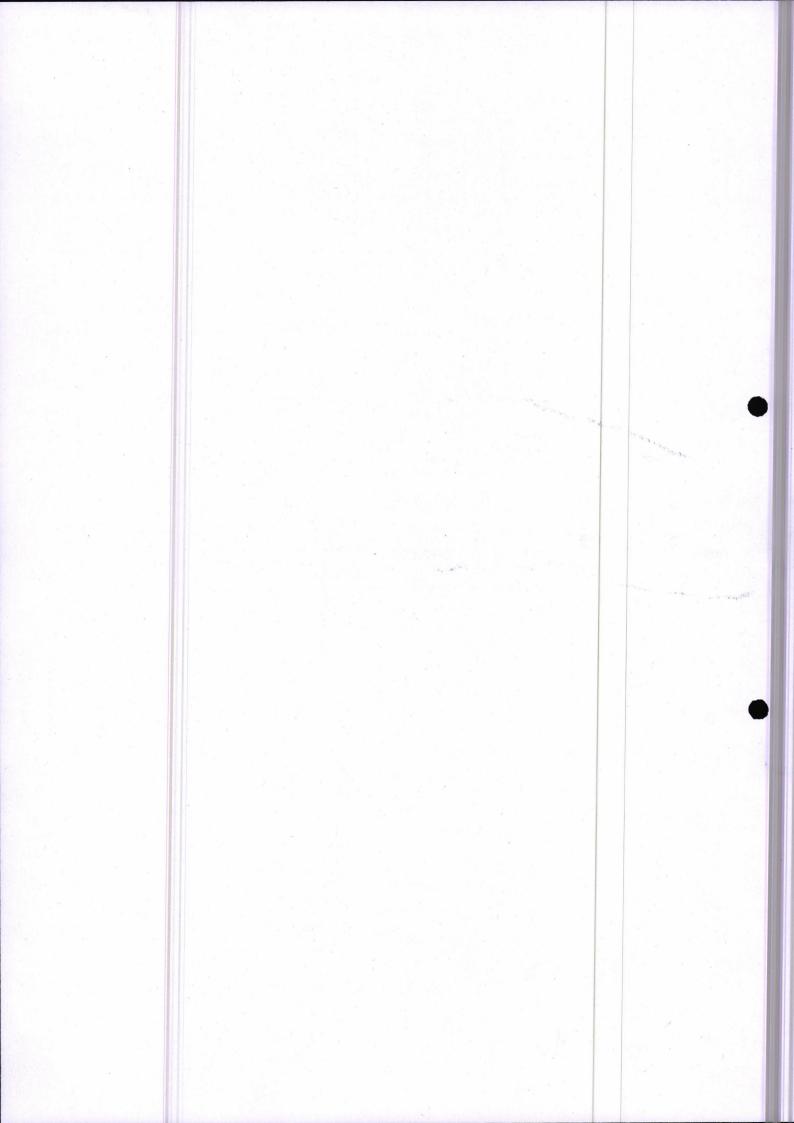
Unit –	3Number of lectures = 13	Title of the unit: Diatom Examination			
Diatoms: Types, Nature, Collection of diatoms as evidences, their examination and medico lega significance. Relevant Case Studies					
Unit –	4 Number of lectures = 13	Title of the unit: Forensic Entomology and Microbiology			
eviden signific	ce during death investigatio cance.	Insects of forensic importance. Collection of entomologica ns. Types and identification of microbial organisms of forensic			
12. Br	ief Description of self-lear	ning / E-learning component			
1.	http://epgp.inflibnet.ac.in/e /ET/1516257136FSC_P12	pgpdata/uploads/epgp_content/S000016FS/P000699/M011528 M2_e-text.pdf			
2.	http://dfs.nic.in/pdfs/biolog	zy%20manual%202019%2007.08.2019%2089%20PAGES.pdf			
3. 4.	https://www.sjsu.edu/peop.	le/steven.lee/courses/c2/s2/Wecht_29.pdf ets/presentations/april2016Pres/Forenziel/20Sectors/2010/			
ч.	20Capt%20Farhat%20H%	ets/presentations/april2016Pres/Forensic%20Serology%20by%			
5.	https://www.youtube.com/				
6.	https://www.youtube.com/	watch?v=kF6EGa8GnD0			
7.	https://www.youtube.com/				
13. Bo	oks Recommended.				
1.	L. Strver, Biochemistry, 3r	dEdition, W.H. Freeman and Company, New York(1988).			
2.	R.K. Murray, D.K. Granne APPLETON & Lange, N	r, P.A. Mayes and V.W. Rodwell, Harper's Biochemistry,			
3.	S. Chowdhuri, Forensic Bid	ology, BPRD, New Delhi (1971).			
4.	R. Saferstein, Forensic Scie	ence Handbook, Vol. III, Prentice Hall, New Jersey(1993).			
5.	G.T. Duncan and M.I. Trac	ey, Serology and DNA typing in, Introduction to Forensic			
	Sciences, 2 nd Edition, W.G	. Eckert (Ed.), CRC Press, Boca Raton(1997).			
	Robertson (1999) : Forensi	c examination of Hair. Francis & Taylor, USA			
7.		ogy, Taylor & Francis Group LLC.			
8.		atomy", Wiley Eastern Ltd., 1965.			
9.	Heather Miller Coyle; "For	rensic Botany", CRC Press, 2005			
	h	Isy Arta J BL			



1. Name of the Departm	nent: Forensio	Science				
2. Course Name	Forensic Bio	ology Lab		L	Т	P
3. Course Code	17040506			0	0	4
4. Type of Course (use t	ick mark)	Core ()	DSE (✓)	AEC ()	SEC 0	OE ()
5. Pre-requisite (if any)	10+2 with science stream	6. Frequency (use tick marks)	Even ()	Odd (✓)	Either Sem ()	Every Sem O
07. Total Number of Le	ctures, Tutor	ials, Practicals				
Lectures = 00		Tutorials = 00		Practica	1 = 52	
08. Course Description:						
In this laboratory course,	the students	will be able to apply th	e knowledge	of Forensi	c Biology	for the
examination of various bi 09. Course Objectives:	iological samp	ples like human hair, p	ollen grains ar	nd diatoms		
1. To impart fundam	nental and nec	essary knowledge esse	ential for exam	ination of	hair and t	fibre
evidences	Same to see Jam					
 To provide a platf To improve stude 	orm to unders	stand collection and sig ge on investigating wild	gnificance of t	ological e	evidences	
4. To develop self-le	earning and be	e aware of recent trends	and technolo	nical adva	nees in fo	roncio
biology	und be	aware of recent trends		igical auva	nees in re	DIENSIC
10. Course Outcomes (C	COs):					
After the successful comp	pletion of this	course the students wi	Il able to:			
		course the students wi	n uore to.			
 Investigate and ex Precisely hypothe biological evidence 	size and recor	es of hair evidences struct the events surro	unding crimes	s scenes co	ontaining	
•		ildlife forensics and for	rensic nalvnol	ogy		
4. Collate and interp	ret scientific i	nformation for writing	review article	es, short co	mmunica	tions.
case reports on mi		ntomological evidences		,		,
11.List of Practicals:						
1. To examine hair n	norphology an	nd determine the specie	es to which the	e hair belo	ngs.	
2. To prepare slides	of scale patter	n of human hair.			U	
3. To examine huma		tex and medulla.				
4. To carry out analy						
		ination of pollen grains	•			
 To carry out micro To prepare a case 						
		olems of wildlife foren	rior			
12. Books Recommende		Siems of windine forens	sics.			
1. Lab Manuals of D					A. CAR	
2. G.T. Duncan and	M.I. Tracey, S	Serology and DNA typi	ing in, Introdu	ction to Fo	prensic Sc	iences,
3. Robertson (1999)	Eckert (Ed.),	CRC Press, Boca Rato	n(1997).	LIC 4		
4. Li R. (2008) Forei	. Forensic exa	mination of Hair. Fran Taylor & Francis Grou	ncis & Taylor,	USA		
5. Nataraj Publishers	s "Wildlife (P	rotection Act, 1972)",	p LLC. Natarai Dublic	here 100	7	
6. G. Erdtman; "Po	llen Mornhol	logy & Plant Taxono	my. Angiogr	erms (an	introduce	tion to
Palynology), Hafr	er Publishing	Co., 1971.	my. ringiosp	all (all	muouuc	
B.E.	f.	ASeph	Asha	A	~	fot



2. Course Name	partment: Forensi Forensic Serology			L	Т	-	
3. Course Code	17040507	·		4		F	
4. Type of Course		Como	()		0	0	S Telling and a second
5. Pre-requisite	10+2 with	Core			E (✓)	SEC	
(if any)	Science	6. Frequ		Even	Odd	Either	Every
(II ally)	Science	(use t		0	(~)	Sem ()	Sem
7 Total Number	f Lectures, Tutori	mark					0
Lectures = 52	n Lectures, rutori	Tutorials			D		
8. Course Descrip	tion	Tutorial	5 = 00		Practical = ()0	
This course provid	es students the know	ladge of hi	iologiaal		··· · · · · · ·		~
Significance of ger	netic marker typing,	Blood grou	uning of	body fluida a	ong with their f	orensic signi	ficance
be explained.	iette marker typing,	Diood gro	uping of	body nuids a	nd Serological	techniques v	will also
9. Course Object	ives						
The objectives of t	his course are to:						
1. Introduce th	ne importance of bio	logical flu	ids (bloo	d semen sal	vo urino avia	at and (11-)	
investigatio	ns.	iogical mu		a, semen, san	iva, urine, swea	at and milk)	in crime
	t Blood grouping fro	om dried s	tains of h	bool			
3. Explain the	usefulness of genet	ic markers	in forens	sic investigat	ions		
4. The forensi	c importance of bloc	odstain pat	terns.	in and a strigut	10115.		
10. Course Outcon	mes (COs)						
Upon successful co	ompletion of this cou	urse, the stu	udents wi	ill get:		t.	
1. Disciplinar	y knowledge of diffe	erent categ	ories bod	y fluids.			
2. Analytical s	skill enhancement of	f various b	lood typi	ng technique	s.		
Critical knc	wledge of different	tests in for	rensic exa	mination of	body fluids.		
4. Scientific k	nowledge of differen	nt serologi	cal techni	iques.			
11. Unit wise detai						and the second	
Unit-1	Number of lectur		tle of the	unit: Foren	sic Importanc	e and analy	ysis of
Importance return	13	Bl	ood Evid	ence			
Blood groups APO	, location, collectio	n and eva	luation o	of Blood: Co	mposition and	l functions,	Human
fresh blood Definit	& Rh: General Prin	cipies, the	ory of the	ir inheritance	e, Blood group	determinatio	on from
dried stains of bloc	ion of antigen and an	hibition	arious Ar	itigen-antibo	dy reactions. B	lood groupin	ng from
Blood pattern analy	od by Absorption in sis and their forensi	a significa	Absorptio	n-elution and	a mixed agglu	tination tech	niques.
Unit - 2	Number of lecture			maite Doman		CD1 1	
	13		ping	unit: roren	sic Significand	ce of Blood	
Identification from	fresh blood and s	stains: Pres	sumptive	and Confir	matory tests	Red cell en	zumes.
Genetics, polymorp	ohism and typing o	of PGM, C	GLO-I, E	SD, EAP, A	K. ADA etc.	and their f	orensic
significance.				,, _	,	and then I	orensie
Unit – 3	Number of lectur	res = Tit	le of the	unit: Forer	sic Importan	ce and anal	vsis of
	13	Bo	dy Fluid	5			
Semen: Formation,	Composition, Mor	phology of	f spermat	tozoa, forens	ic significance	e, Presumpti	ve and
Confirmatory tests (including Azoosper	mic semer	n stains).	Forensic sign	nificance of oth	her body flui	ids like
alive event mille	tc, their collection and	nd Tests fo	or their ide	entifications.	Blood groupin	g from body	fluids,
anva, Sweat, IIIIK e	retor/non-secretor s	tatus.					
letermination of sec			lo of the	unit. Conala			
letermination of sec Jnit – 4	Number of lecture	es = Tit	ie of the	unit: Seroio	gical Techniq	ues	
letermination of sec	Number of lecture 13	es = Tit	ie of the	unit: Seroio	gical Techniq	ues	
letermination of sec		es = Tit					
letermination of sec		es = Tit		Aste	gical Techniq	ves ~~~~	



Primary binding assays (ELISA, Immunochromatographic assays), Secondary binding assays (Precipitation based assays- Immunodiffusion and electrophoretic methods for species Identification, Agglutination based assays-Direct agglutination assay, Passive agglutination assay)
 12. Brief Description of self-learning / E-learning component

- 1. https://www.youtube.com/watch?v=ZaRyoVyGsl4
- 2. https://www.youtube.com/watch?v=VSVYgivfs9c
- 3. https://www.youtube.com/watch?v=yj7bfZKlIp8
- 4. https://www.youtube.com/watch?v=noMsCGRkwSE
- 5. https://www.youtube.com/watch?v=xKFAJkWidFo
- 6. https://www.youtube.com/watch?v=cKnEdvrmHK4
- 7. https://www.youtube.com/watch?v=wfqnNuYIY78
- 8. https://www.youtube.com/watch?v=fwO-k8P67ac
- 9. https://www.youtube.com/watch?v=cKnEdvrmHK4
- 10. https://www.youtube.com/watch?v=7uL_m8xEdJk
- 11. https://www.youtube.com/watch?v=efPx0avVh5w
- 12. https://www.youtube.com/watch?v=-jKzLLHjRfs
- 13. https://www.youtube.com/watch?v=Svoipyl6IRc

13. Books Recommended

- 1. Boorman, K. E: Blood Group Serology, Churchill, and Lincolin, P. J. (1988)
- 2. Saferstein, R. (1982): Science Handbook, Vol. I, II and III, Prentice Hall, New Jersey.
- 3. Gilblet, E. (1969): Marker's in Human Blood, Davis, Pennsylvania.
- 4. Culliford, B. E. (1971): The examination and Typing of Blood Stains, US Deptt. of Justice, Washington.
- 5. Chowdhuri, S. (1971): Forensic Biology, B P R & D, Govt. of India.
- 6. Dunsford, I. and Bowley, C. (1967): Blood Grouping Techniques, Oliver & Boyd, London.
- 7. Eckert, W. G. & James, S.H. (1989): Interpretation of Blood Stain, Evidence, Elsevier, New York.
- 8. Li Richard. Forensic Biology, Taylor & Francis Group LLC., 2008.
- 9. R. Saferstein, Criminalistics, 8th Edition, Prentice Hall, New Jersey 2004.
- 10. T. Bevel and R.M. Gardner, Bloodstain Pattern Analysis, 3rd Edition, CRC Press, Boca Raton. (2008).

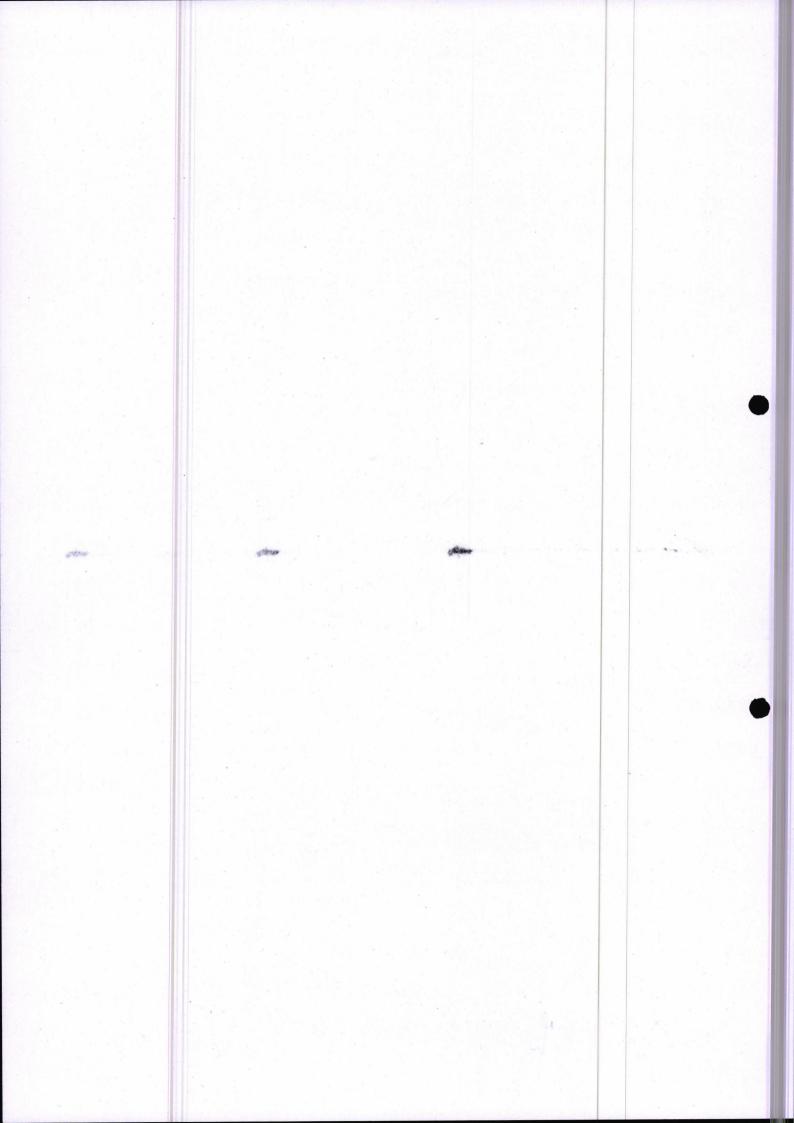
h



	Forensic Serolog	gy Lab	L	Т		Р
3. Course Code	17040508		0	0		4
4. Type of Course	(use tick mark)	Core ()	DSE	(\checkmark)	S	SEC()
5. Pre-requisite	10+2 with	6. Frequency	Even	Odd	Either	Every Sem
(if any)	Science	(use tick marks)	0	(*)	Sem (0
7. Total Number o	of Lectures, Tuto	rials, Practical				
Lectures = 00		Tutorials = 00		Practic	al = 52	
8. Course Description	ion					
This course provide	es students the pra	ctical knowledge of dif	ferent body	fluid evi	dences alo	ng with their
forensic significanc	e, Significance of	Blood grouping of bod	ly fluids and	d Serolog	ical techni	ques will also
be explained.						
9. Course Objecti						
		narkers in forensic invest				
2. Identify blo	od samples by che	emical tests and study o	f blood stai	ns pattern	IS.	
3. Determine b	blood group from	fresh and dried blood sa	amples.			
4. Gain practic	cal exposure in ana	alysis of body fluids as	evidence			
10. Course Outcon	nes (COs)					
Upon successful co	mpletion of this c	ourse, the students will	be able to:			
		see.				
1. Know about	t the practical kno	wledge of preliminary t	tests of bloc	od.		
 Know about Develop pra 	t the practical kno actical approach ar	wledge of preliminary t nd skills for carrying ou	tests of bloc	od. uping from	n fresh blo	ood and stains.
 Know about Develop pra Enhance ski 	t the practical kno actical approach ar ills to examine var	wledge of preliminary t nd skills for carrying ou rious body fluids.	tests of bloc t blood grou	uping from		
 Know about Develop pra Enhance ski Develop ana 	t the practical kno actical approach ar ills to examine var alytical and scienti	wledge of preliminary t nd skills for carrying ou	tests of bloc t blood grou	uping from		
 Know about Develop pra Enhance ski Develop ana List of Experin 	t the practical kno- actical approach ar alls to examine var alytical and sciention nents	wledge of preliminary t nd skills for carrying ou rious body fluids. ific reasoning to unders	tests of bloc t blood grou tand blood	uping from		
 Know about Develop pra Enhance ski Develop ana 11. List of Experin To determin 	t the practical kno- actical approach ar ills to examine var alytical and scienti nents a blood group fro	wledge of preliminary t nd skills for carrying ou ious body fluids. ific reasoning to unders m fresh blood samples.	tests of bloc t blood grou tand blood	uping from		
 Know about Develop pra Enhance ski Develop ana Develop ana To determin To determin 	t the practical kno- actical approach ar alls to examine var alytical and scienti nents ne blood group fro ne blood group fro	wledge of preliminary t nd skills for carrying ou rious body fluids. ific reasoning to unders m fresh blood samples. m dried blood sample.	tests of bloc t blood grou tand blood	uping from		
 Know about Develop pra Enhance ski Develop ana 11. List of Experim To determin To determin To identify b 	t the practical kno- actical approach ar ills to examine var alytical and scienti nents he blood group fro blood samples by	wledge of preliminary t nd skills for carrying ou ious body fluids. ific reasoning to unders m fresh blood samples. m dried blood sample. preliminary tests	tests of bloc t blood grou tand blood	uping from		
 Know about Develop pra Enhance ski Develop ana Develop ana 11. List of Experin To determin To determin To identify b To carry out 	t the practical know actical approach ar ills to examine var alytical and scienti nents he blood group fro blood samples by t the Teichmann to	wledge of preliminary t nd skills for carrying ou rious body fluids. ific reasoning to unders m fresh blood samples. m dried blood sample. preliminary tests est for blood	tests of bloc t blood grou tand blood	uping from		
 Know about Develop pra Enhance ski Develop ana Develop ana 11. List of Experim To determin To determin To identify b To carry out To carry out 	t the practical know actical approach ar alytical and scientian nents the blood group from blood group from blood samples by t the Teichmann te at the Takayama te	wledge of preliminary t nd skills for carrying ou rious body fluids. ific reasoning to unders m fresh blood samples. m dried blood sample. preliminary tests est for blood est for blood	tests of bloc t blood grou tand blood	uping from		
 Know about Develop pra Enhance ski Develop ana 11. List of Experin To determin To determin To identify b To carry out To carry ou To identify t 	t the practical know actical approach ar ills to examine var alytical and scienti nents he blood group from blood group from blood samples by t the Teichmann te the Takayama te the given stain as	wledge of preliminary t ad skills for carrying ou tious body fluids. ific reasoning to unders m fresh blood samples. m dried blood sample. preliminary tests est for blood est for blood semen.	tests of bloc t blood grou tand blood	uping from		
 Know about Develop pra Enhance ski Develop ana Develop ana 1. List of Experin 1. To determin 2. To determin 3. To identify b 4. To carry out 5. To carry out 6. To identify t 7. To identify t 	t the practical know actical approach ar ills to examine var alytical and scienti nents we blood group fro blood samples by t the Teichmann te the given stain as the given stain as	wledge of preliminary t nd skills for carrying ou tious body fluids. ific reasoning to unders m fresh blood samples. m dried blood sample. preliminary tests est for blood est for blood semen. saliva.	tests of bloc t blood grou tand blood	uping from		
 Know about Develop pra Enhance ski Develop ana Develop ana 11. List of Experim To determin To determin To identify t 	t the practical know actical approach ar alytical and scientian nents blood group from blood group from blood samples by t the Teichmann te the given stain as the given stain as the given stain as	wledge of preliminary t nd skills for carrying ou rious body fluids. ific reasoning to unders m fresh blood samples. m dried blood sample. preliminary tests est for blood est for blood semen. saliva. urine.	tests of bloc t blood grou tand blood	uping from		
 Know about Develop pra Enhance ski Develop ana Develop ana 11. List of Experim To determin To determin To identify f To carry out To identify f 	t the practical know actical approach ar alytical and scientian nents the blood group from blood group from blood samples by t the Teichmann te the given stain as the given stain as the given stain as ferent bloodstain	wledge of preliminary t ad skills for carrying ou ious body fluids. ific reasoning to unders m fresh blood samples. m dried blood sample. preliminary tests est for blood est for blood semen. saliva. urine. pattern analysis.	tests of bloc t blood grou tand blood	uping from		
 Know about Develop pra Enhance ski Develop ana 1. List of Experim 1. To determin 2. To determin 3. To identify b 4. To carry out 5. To carry out 6. To identify t 7. To identify t 8. To identify t 9. To study dif 10. To study the 	t the practical know actical approach ar ills to examine var alytical and scienti nents he blood group fro blood samples by t the Teichmann te the given stain as the given stain as the given stain as ferent bloodstain correlation betwee	wledge of preliminary t nd skills for carrying ou rious body fluids. ific reasoning to unders m fresh blood samples. m dried blood sample. preliminary tests est for blood est for blood semen. saliva. urine.	tests of bloc t blood grou tand blood	uping from		
 Know about Develop pra Enhance ski Develop ana Enhance ski Develop ana To determin To determin To determin To identify t To study the Books Recomm 	t the practical know actical approach ar ills to examine var alytical and scienti nents he blood group fro blood samples by t the Teichmann te the given stain as the given stain as the given stain as ferent bloodstain correlation betwee	wledge of preliminary t nd skills for carrying ou tious body fluids. ific reasoning to unders m fresh blood samples. m dried blood sample. preliminary tests est for blood set for blood semen. saliva. urine. pattern analysis. een impact angle and sh	tests of bloc t blood grou tand blood	uping from		



2. Course Name	Forensic Chemistry			L	Т	P
3. Course Code	17040509			4	0	0
4. Type of Course	(use tick mark)	Core ()	DSE(√)	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even ()	Odd(√)	Either Sem ()	Every Sem (
7. Total Number of	of Lectures, Tutorials	s. Practical				
Lectures = 52		Tutorials = (00	Practical	= 00	
8. Course Descrip	tion:	Tutoriuis	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Tractical	00	
 Course Objectiv To understa forensic print To develop practicing for 	on, characteristics of t ves and the chemistry and nciples and procedure the understanding of the orensic principles and and the characteristics	behaviour fire s in criminal ju the examination procedures in	and manage astice system n of petroleu criminal jus	ement of arso n. um products tice system.	on cases for and adulter	ration for
challenges of the challenges o	. ,	nvironment wi	th the most c	current know	Substances ledge and t	to respond to technology.
Upon successful co	ompletion of this cours	se, the students	will be able	to:		
 explain the second secon	aderstanding of the ch real time forensic issue nalytical skills for e al data related to foren entific reasoning abili- and follow the processed int of the understanding in legal and social con	tes in legal and examination of sic and adulter ty to character es required for g of the charac	social content of petroleum ration cases. ize and analy a sustainable	ext. n products vze petroleur e, healthy, sa	to analyze n products fe and hone	e and describe and adulteration est environment
Substances	led content					
Substances 11. Unit wise detai	Number of	Title of the u	nite Intro de			
Substances 11. Unit wise detai	Number of lectures =13	Title of the u	nit: Introdu	iction to Ar	son	
Substances 11. Unit wise detai Unit-1 Arson: Chemistry a	lectures =13 and Behaviour of fire, of	origin and caus	se and their r	nethods of in	nvestigation	n and evaluation
Substances 11. Unit wise detai Unit-1 Arson: Chemistry a of clue material, an	lectures =13 and Behaviour of fire, alysis of arson exhibit	origin and causes by various m	se and their r nethods: Mar	nethods of in nagement of	vestigation	n and evaluation s.
Substances 11. Unit wise detai Unit-1 Arson: Chemistry a of clue material, an	lectures =13 and Behaviour of fire, of	origin and caus	se and their r nethods: Mar	nethods of in nagement of	vestigation	n and evaluation s.
Substances 11. Unit wise detai Unit-1 Arson: Chemistry a of clue material, and Unit – 2 Examination of pet	lectures =13 and Behaviour of fire, a alysis of arson exhibit Number of	origin and causes to by various m Title of the u illation and fra	se and their r nethods: Mar nit: Petrole	nethods of in agement of um Product various fract	nvestigation Arson case s	8 <mark>.</mark>



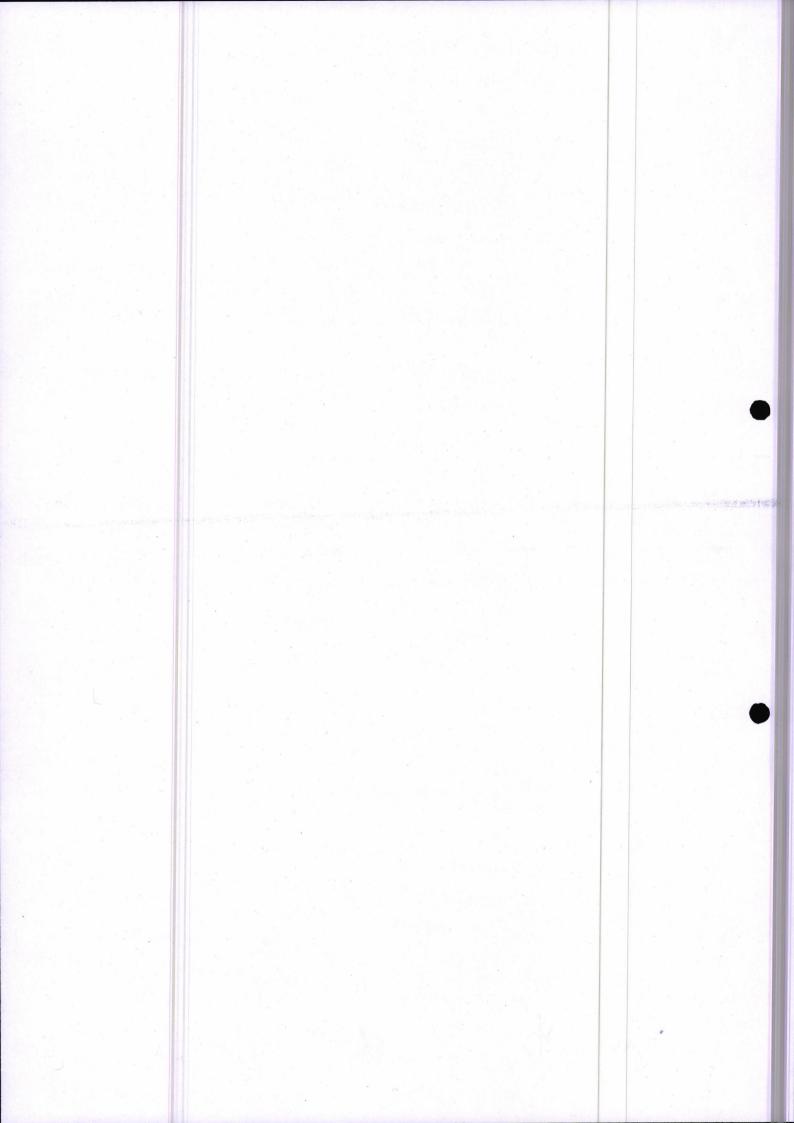
Unit – 3	Number of lectures =13	Title of the unit: Explosives
Classification,	composition and chara	acteristics of explosives, pyrotechnics, IEDs, systematic examination
of explosives a	ind explosion residues	in the laboratory using chemical and instrumental techniques in the
laboratory and	interpretation of result	ts, Explosives Act.
Unit -4	Number of	Title of the unit: Narcotics and Psychotropic Substances
	lectures=13	
Definition of r	arcotics, drugs and ps	sychotropic substances. Classification and characteristics – Narcotics
stimulants, de	pressants and halluci	nogens. Testing of narcotics, drugs and psychotropic substances
Isolation tech	niques for purifying	g narcotics, drugs and psychotropic substances – Thin Laye
Chromatograp	hy, Gas-Liquid Chi	romatography and High-Performance Liquid Chromatography
Presumptive an	nd screening tests for n	narcotics, drugs and psychotropic substances.
		, and population of a substances.
12. Brief Desc	ription of self-learnin	ng / E-learning component
1. https://i	ajasthanjudicialacader	my.nic.in/docs/studyMaterial17122020.pdf
2. <u>https://d</u>	dor.gov.in/sites/default	t/files/Narcotic-Drugs-and-Psychotropic-Substances-Act-1985.pdf
3. <u>http://d</u>	ts.nic.in/pdfs/CHEMIS	STRY%20MANUAL.pdf
4. <u>https://c</u>	ligilib.bppt.go.id/samp	oul/Guide_to_ASTM_Test_Methods_for_the_Analysis_of_Petroleum
Produ	cts_and_Lubricants_fu	<u>ill.pdf</u>
5. <u>http://a</u>	grifuelsqcs-i.com/attac	hments/1207%20/d4057.pdf
	fs.nic.in/pdfs/EXPLOs	
	www.ojp.gov/pdffiles1	
	nfa.usfa.fema.gov/ax/si	<u>m/sm_r0214.pdf</u>
13. Books Rec		
1. Carper,	K. (ed.), Forensic Eng	gineering, 2 nd Edn. CRC Press, Bocarida, Florida, 2001.
2. Field, J.	., and Carper, K., Cons	struction Failure, 2 nd Edn. John Wiley and Sons, New York, 1996.
3. James,	S.H. and Nordby, J.J. I	Eds., Forensic Science An Introduction to Scientific and Investigative
Technic	lues, CRC Press, Lond	lon, 2003.
4. R. Safer	rstein, Criminalistics, 8	8thEdition, Prentice Hall, New Jersey(2004)
5. SAE H	andbook, Vol. 4, On	n-Hghway and Off-Highway Machinery, Society of Auto mobile

- BZ

Engineers, 2000



	Forensic Chemi	istry Lab		L	Т	P
3. Course Code	17040510			0	0	2
I. Type of Course	(use tick mark)	Core ()	DSE (🗸)	AEC ()	SEC ()	OE ()
5. Pre-requisite	10+2 with	6. Frequency	Even ()	$Odd(\checkmark)$	Either	Every
(If any)	Science stream.	(Use tick marks)	0	ouu (*)	Sem ()	Sem ()
7. Total Number o	f Lectures, Tuto	rials, Practicals				
Lectures = 00		Tutorials = 00		Practical =	= 52	
8. Course Descript	tion:					
This course offers th	ne analytical know	wledge of petroleun	n products, ez	xplosives, in	crime scene	investigatio
his course discuss	ses the cases and a	analytical procedur	res related to	arson, chara	acteristics of	f the narcotic
rugs and psychotro	opic substances.	~				
. Course Objectiv	ves:					
1. To understa	nd the procedure	s for the analysis	of evolocivo	arcon and	notrolar	n nroducto (
practicing fo	orensic procedure	and procedures in	criminal inet	ice system	s, petroleur	in products f
2. To learn the	report writing and	d documentation to	make studen	its canable to	evoress the	ir ideas alean
and persuasi	ively in written ar	nd oral forms at tec	hnical, profe	ssional and	legal platfo	rms
3. To understan	nd and perform th	e quantitative and a	ualitative ar	alysis of the	explosives	and netroleu
products to v	work effectively i	in any multicultural	environmen	nt.	enpiosives	and perioted
4. To understa	ind the current t	echniques and pro	ocedures to	face challer	iges of an	ever-changing
environment	t with the most cu	irrent knowledge an	nd technolog	y.	0	
0. Course Outcon	nes (COs):					1
he students will ab	ale to –					
		of explosives used,	their investi	gation to ev	lain the roo	1 time forme
issues in leg	al and social cont	ext.	, then myest	gation to exj	Jam uic rea	i unic iorens
		of Fire related cas	es and the ro	ole of expert	witnesses	o hypothesi
and reconstru	uct the events sur	rounding a crime sc	ene based or	their critica	l thinking a	nd observation
skills.					B	
						ia oosoi van
	the application of				products and	
3. Understand tanalyze, and	describe the expe	TLC, GC-MS in therimental data for i	ne analysis of nterpretation	f petroleum j of results e	ficiently.	l explosives
 Understand t analyze, and Understand 	the report making	TLC, GC-MS in the erimental data for in g and documenta	ne analysis of nterpretation ation to com	f petroleum j of results en municate e	ficiently.	l explosives
 Understand t analyze, and Understand opinions and 	l describe the expo the report makin findings related	TLC, GC-MS in th	ne analysis of nterpretation ation to com	f petroleum j of results en municate e	ficiently.	l explosives
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- 3. James, S.H. and Nordby, J.J. Eds., Forensic Science An Introduction to Scientific and Investigative Techniques, CRC Press, London, 2003.
- 4. SAE Handbook, Vol. 4, On-Hghway and Off-Highway Machinery, Society of Auto mobile Engineers, 2000

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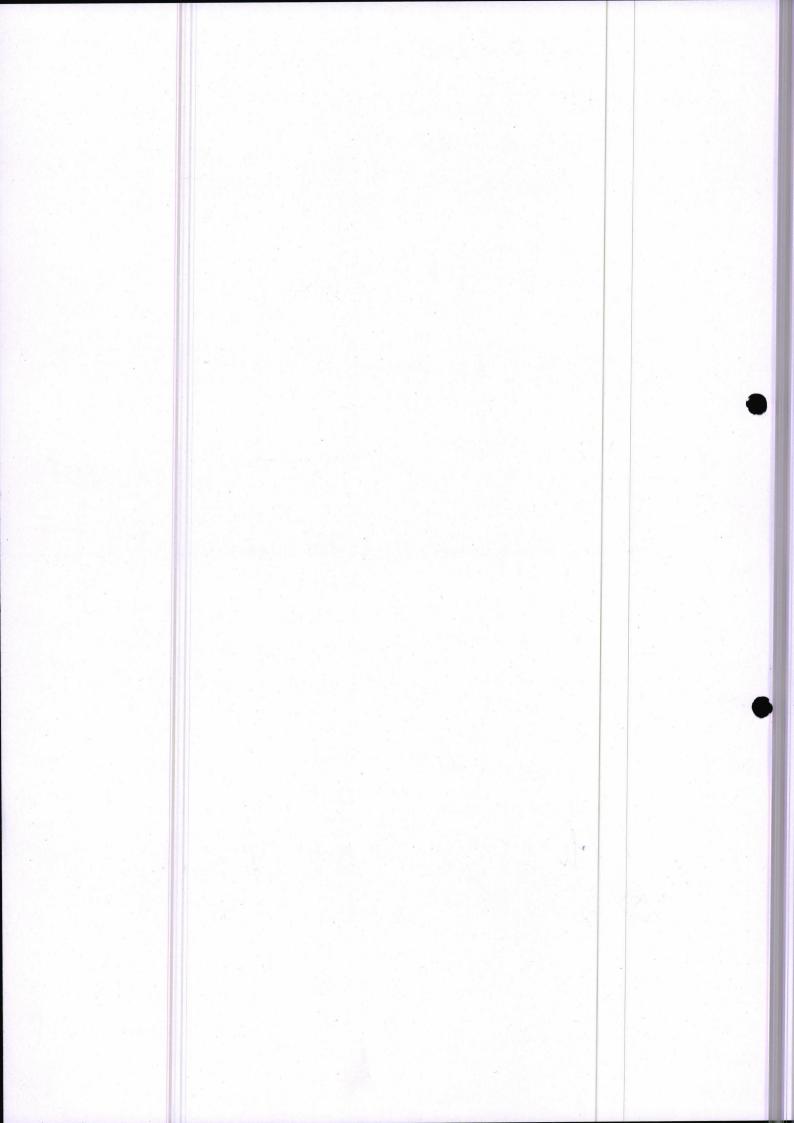


1. Name of the De	partment: Forensic	Science	and the			
2. Course Name	Forensic Toxicolog			L	Т	P
3. Course Code	17040511			4	0	0
4. Type of Course	(use tick mark)	Core ()	DSE (✓)	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even ()	Odd(√)	Either Sem ()	Every Sem ()
7. Total Number (of Lectures, Tutorial	1				
Lectures = 52	n Lectures, rutorial	Tutorials =	0.0	Practical		
8. Course Descrip	tion	Tutoriais –	00	Practical	= 00	
and classification, a	with the theoretical st also learn about poiso plogical and war weap	ning and mana	agement. T	he students	are then in	troduced to
. Course Objectiv						
 To develop To develop 	lisciplinary knowledge critical thinking while analytical/scientific r a problem solving att mes (COs):	e examining to reasoning by a	oxicologica nalysing ev	l evidences	l interpretir	ng their final resu
	mpletion of this cours	a				
 Obtain critication Effectively court of law Unit wise details 		inderstand the and report the	absorption narcotics,	mechanisn drugs and p	n of poisons sychotropie	s in body fluids. c substances in th
J nit-1		Title of the w	mit. Danis	e e F	·	
/1110-1	Number of lectures : 13	Title of the u	init: Basic	es of Foren	sic l'oxicol	ogy
orensic Toxicolog	y - Scope and Signifi	icance Classif	instion of	Doigong has	ad an that	
ction, uses and ori actors affecting th	gin. Poisons - Types, le effect of poison, me	routes of adm edico-legal asp	inistration, pects of poi	toxicity, si isoning case	gn and sym es.	ptoms.
fuidelines for colle	ecting forensic eviden	ices in poisoni	ng cases at	t crime scen	e. Importa	nce of
ody tissues/fluids	ination in poisoning c	ases. Sample p	breparation	for the ana	lysis of poi	isons in
Jnit - 2	and analysis by variou Number of				0 D 1 . (
	lectures :13	The of the u	mit: Narc(oue Drugs	x rsychoti	ropic Substance
	A CONTRACTOR OF					
DPS drugs, Drug SL, Sample prepa Drug addiction and	ance NDPS drugs in f Law Enforcement, S ration for analysis, Pr its problems, Drug an	Search & Seiz eliminary anal nd cosmetics a	ure, Sampl ysis of dru ct.	ing procedu gs, Reporti	ire. Forwar	ding of sample
J nit – 3	Number of lectures : 13	Title of the u	nit: Poiso	ns		
Blu	h &	ye k	Jota	Y.		fall



'esticide	nly used poisons for suicidal, Homicidal and Accidental deaths Common Poisoning in Ind es: Different types and their formulations, identification of pesticides, standard or sub-standard red pesticides.
J nit -4	Number of lectures Title of the unit: Analytical methods and techniques
Differen	t extraction methods (Stas Otto Mathod Asid dispetien methods 1 W/ (1) (1) (1) (1) (1)
iquid e iC-MS)	t extraction methods (Stas Otto Method, Acid digestion method, Wet digestion method, Liquid extraction) Basic chromatographic techniques, Hyphenated techniques (HPLC, HPTLC, LC-M
	f Description of self-learning / E-learning component
1. h	http://www.forensicsciencesimplified.org/tox/Toxicology.pdf
2. <u>h</u>	attps://www.researchgate.net/publication/334033207 Forensic Toxicology
3. <u>h</u>	attps://ccsuniversity.ac.in/bridge-library/pdf/Toxicology EBook.pdf
4. <u>h</u>	ttp://www.eolss.net/sample-chapters/c09/e6-12-23-00.pdf
5. <u>h</u>	attps://meridian.allenpress.com/aplm/article/125/4/581/453023/Principles-of-Forensic-Toxicolog
6. <u>h</u>	<u>ittps://www.youtube.com/watch?v=r-YgTuO7_ak</u>
	xs Recommended
1	inar I.L; "Organic Chemistry: Vol. I Fundamental Principle", Pearson Education, Singapore, 967.
2. P	earson D; "Chemical Analysis of Food", Chemical Publ. Co. New York, 1971.
3. N	Aorrison R.T and Boyd R. N.; "Organic Chemistry", 6th Edition, Prentice Hall, 2003.
4. "	Laboratory Procedure Manual: Petroleum Products", Directorate of Forensic Science MHA
	Govt. of India, 2005.
11	Working Procedure Manual on Chemistry", Directorate of Forensic Science MHA Govt.of ndia, 2005.
6. B	Bureau of Indian Standard Specifications related to Alcohols and Petroleum Products.
7. V R	Velcher Frank; "Standard Methods of Chemical Analysis", 6th Edition, Van Nostrand Reinhold, 1969.
	Vatson C.A; "Official and Standardized Methods of Analysis", Royal Society of Chemistry,
L	JK, 1994.
U	Laboratory Procedure Manual: Forensic Toxicology", Directorate of Forensic Science, MHA, Bovt. of India, 2005.
S	Jarayanan, T.V; "Modern Techniques of Bomb Detection and Disposal", R. A. Security ystem, 1995.
11. Ja	acqueline Akhavan; "The chemistry of explosives", Royal Society of Chemistry, UK, 1998.
12. "	Working Procedure Manual- Chemistry, Explosives and Narcotics", BPR&D, 2000
13. N	lesink, RJM; "Toxicology- Principles and Applications", CRC Press, 1996.
14. C	hadha, PV; "Handbook of Forensic Medicine & Toxicology", Jaypee Brothers, NewDelhi,
	004. Andi IB: "Touthook of Medical Laine In the Tail In Prototo Tail and the State
13. IV	Iodi, JP; "Textbook of Medical Jurisprudence & Toxicology", N.M. Tripathi Pub, 2001.
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1. Name of the Depa	rtment: Forensic Science	ce				
2. Course Name	Forensic Toxicology L	lab		L	Τ	Р
3. Course Code	17040512			0	0	4
4. Type of Course (u	se tick mark)	Core ()	DSE (√)	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even ()	Odd(√)	Either Sem ()	Every Sem ()
7. Total Number of I	Lectures, Tutorials, Pra					
Lectures =00		Tutorials =	00	Practical	= 52	
8. Course Descriptio	n:		× , ×			and the second second
	rse, the students will be a	ble to apply th	e knowled	ge of Foren	sic toxicolo	gy to analyse
samples of volatile po	isons, plant poisons and	metallic poiso	ns etc.	0		0,
9. Course Objectives			1 1 - ¹			
1. To impart disc	iplinary knowledge abou	it forensic toxi	cology			
2. To develop cri	tical thinking while exan	nining toxcolo	gical evide	ences for so	lving relate	d crimes.
3. To develop and	alytical/ scientific reason	ing by analysin	ng evidenc	es and inter	preting the	ir final result
4. To develop a p	problem solving attitude l	by studying di	fferent cas	es of forens	ic toxicolo	gy
10. Course Outcome	s (COs):					
Upon successful com	pletion of course, the stud	dents will be a	ble to			
 Understand the List of Experiment To analyse vis 	cera for volatile poisons	(Organic and I	Inorganic)	by Conway	apparatus.	
3. To analyse vis	and identify metallic po echnique. cera for organochloro, or and UV-visible spectrom	rganophosphor				
4. To determine a	alcohol in blood and urin	e sample.				
5. To perform sy various technic	stematic extraction, and	identification	of non –v	volatile drug	gs and plar	nt poisons by
6. To identify control of the following	ommon plant poisons our test, cannabis and ins	strumental tecl	hniques.			
instrumental m 8. To determine	phosphine in aluminum					
instrumental an 9. To identify ps	nalysis. ychotropic drugs- barbit C/HPTLC and instrumer	urates, benzoo	liazepines			
10. To detect and	identify of major metabo	olites of ethan	ol, methan	ol, parathic	on, carbryla	and heroin.
	stematic analysis of unkn	nown poisons.	· · · · ·			
12. Books Recommen	nded			· · · · · · · · · · · · · · · · · · ·		
XI	L 48	eg G	Asi	ca b	L. p	ly



1. DFS Manual of Forensic Toxicology

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- A C Moffat Clarke's Analysis of Drugs and Poisons, (Formerly Isolation & Identification of Drugs) 3rd Ed. 2 Vol.
- 3. Casarett & Doll Toxicology (2003) The Basic Science of poisons.
- 4. Clark, E.G.C. : Isolation and identification of Drugs, VI and Vol. II, 1966, 1975-1986.
- 5. Curry A.S (1986) Analytical Methods in Human Toxicology, Part II, CRC Press Ohio
- 6. Curry, A.S. (1976) Poison Detection in Human Organs.
- 7. Michael J. Deverlanko et al (1995) Hand Book of Toxicology CRC Press.
- 8. Morgan B.J.T (1996) Statistics in Toxicology, Clarendon Press, Oxford.
- 9. Modi, Text Book of Medical Jurisprudence Forensic Medicines and Toxicology (1999) CBS Pub. New Delhi

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10. Saferstien (1982) Forensic Science, Handbook, Vol. I, II & III, Prentice Hall Inc. USA.



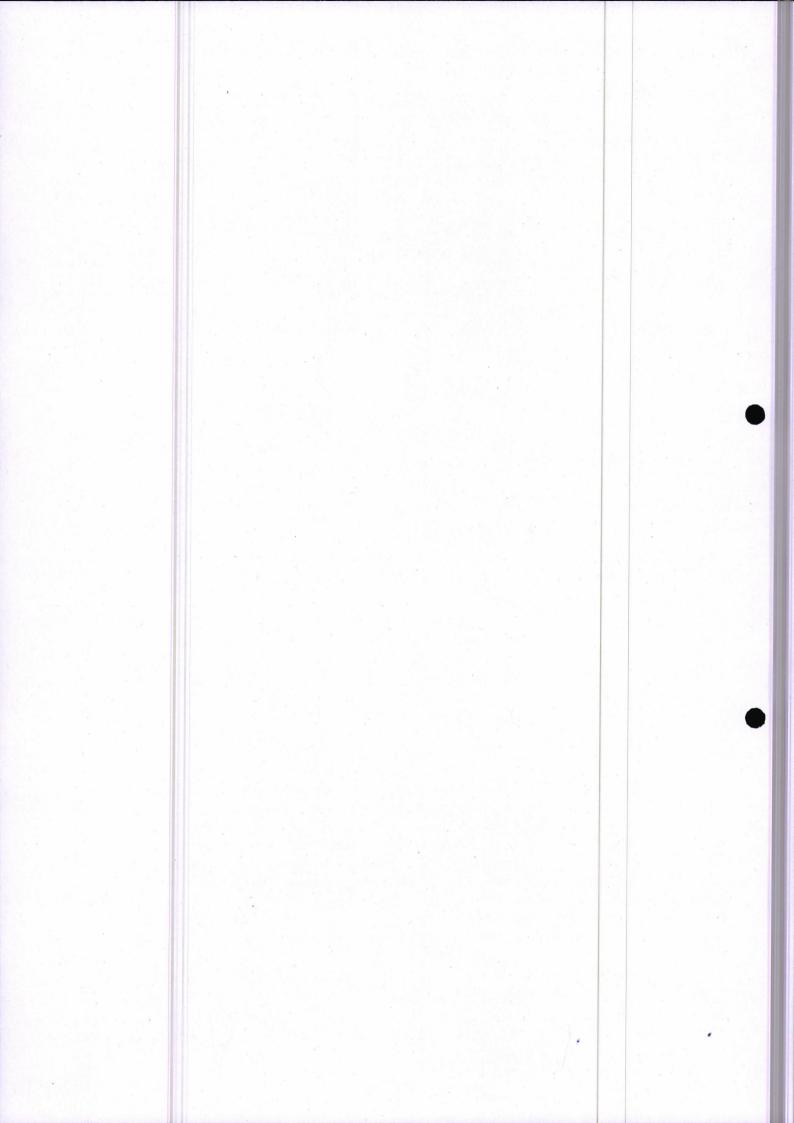
					1	
2.Course Name		d Document Examination	L	Т		Р
3.Course Code	17040513		4	0		0
	e (use tick mark)	Core ()	DSE		· SE	C ()
5.Pre-requisite (if any)	10+2 with Science stream	6.Frequency (use tick marks)	Even ()	Odd (✓)	Eithe r Sem	Every Sem ()
7.Total Number	of Lectures, Tutorials	s, Practicals				
Lectures = 52		Tutorials = 00		Practic	al = 00	
8. Course Descri	ption				it .	
This course will e	explain various termino	logies related to questione	d document	examinati	on. It als	o focuses
on court observat	ions and proceedings w	with reference to questione	d document	examinati	on includ	ing paper
and paperless doo	cuments as well as typ	ewritten matter. The stud	ents will also	o learn ab	out comp	arison of
handwriting and s	signature specimens as	well as paper and ink exa	nination.			
9. Course Object	tives		-		1. A.	
1. To unders	tand the concepts of qu	estioned document and ha	indwriting ex	xaminatio	n.	
2. To identif	y and compare the han	dwriting or signature sam	ples on the l	basis of c	lass and in	ndividua
characteri						
3. To gain ki	nowledge about various	s factors which effect hand	lwriting of a	n individu	ial	
		per and ink examination.				
Upon successful of 1. Gain conc	completion of this cour	se, students would be able	d handwritin		ation	
 Gain conc Develop p Ethically a 	completion of this cour eptual knowledge abou problem solving skills i analyze and report vari- cate effectively their th		d handwritin ess crime ca estioned doc	ses ument exa	amination	
Upon successful of 1. Gain conc 2. Develop p 3. Ethically a 4. Communi 11.Unit wise deta	completion of this cour reptual knowledge abou problem solving skills in analyze and report vari- cate effectively their the ailed content	at questioned document ar n various paper and paper ous evidence related to qu oughts, opinions and find	d handwritin ess crime ca estioned doc ngs for the c	ses ument exa court of la	amination w.	
Upon successful of 1. Gain conc 2. Develop p 3. Ethically a 4. Communi	completion of this cour eptual knowledge abou problem solving skills i analyze and report vari- cate effectively their th	at questioned document ar n various paper and paper ous evidence related to qu oughts, opinions and find tures = 10 Title of the	d handwritin ess crime ca estioned doc ngs for the c	ses ument exa court of la	amination w.	
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Upon successful of 1. Gain conc 2. Develop p 3. Ethically a 4. Communi 11.Unit wise deta Unit-1 Define: Documer and paper less doc	completion of this cour eeptual knowledge about problem solving skills it analyze and report vari- cate effectively their the ailed content Number of lect nt, Questioned docume cument, evidence in cas	at questioned document ar n various paper and paper ous evidence related to que oughts, opinions and find tures = 10 Title of the document nt. Problems related to Q se of questioned document	d handwritin ess crime ca estioned doc ngs for the c unit: Int uestioned doc	ses ument exactor court of la roduction ocument e expert opi	amination w. 1 to Qu xaminatic nion, adm	estioned on. Paper hissibility
Upon successful of 1. Gain conc 2. Develop p 3. Ethically a 4. Communi 11.Unit wise deta Unit-1 Define: Documer and paper less doo in court of law, I	completion of this cour eeptual knowledge about problem solving skills it analyze and report vari- cate effectively their the ailed content Number of lect nt, Questioned docume cument, evidence in cas	at questioned document arn various paper and paperous evidence related to queoughts, opinions and findtures = 10Title of thedocumentnt. Problems related to Que of questioned document.r.t. questioned document	d handwritin ess crime ca estioned doc ngs for the c unit: Int uestioned doc	ses ument exactor court of la roduction ocument e expert opi	amination w. 1 to Qu xaminatic nion, adm	estioned on. Paper hissibility
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of Health of Writer, Guided Hand Signatures, Effect of Drugs and Alcohol on handwriting, Deliberate

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Variation of Handwriting, Disguised Writings, Difficulties of Disguising Writing, Disguised Signatures, Simulated Writings, Freehand Simulation, Slowly Made Simulations, Simulations of Poorly Made Signatures, Rapidly Made Simulations, Traced Signatures, Introduction of Features of the Copier, Digital signature/writings and examination: Forensic stylistics, Forensic linguistics, e-documents, digital signatures, Examination of fake rubber stamps and seals, Examination of printed and photocopied documents

	Unit 4 No. of	f Lectures = 15	Title of the unit: Examination of paper and ink
	Examination of Paper: Types of	of Paper, Manufacture	e of Paper, Paper gsm, Testing of Paper, Non-destructive
	Tests, Destructive Tests, Com	nparison of Paper, Me	chanical Fits, Watermarks, Dating of Paper, Envelopes,
			1-Point Inks, Fiber Tipped, Roller Ball, and Gel Pens.
	Examination of Inks: Visual E	Examination, Examina	ation of Color, Absorption Spectra and the Examination
			n of Infrared Radiation, Infrared Absorption, Ultraviolet
	Fluorescence, Infrared Lumi	inescence, Compariso	on of Inks Using Infrared Luminescence, Erasures,
			estructive Techniques, Chromatography, Thin-Layer
			natography, Chemical Tests, Other Components of Ink,
	Further Techniques, Relative	Aging of Ball-Point In	nks, Dating of Inks.
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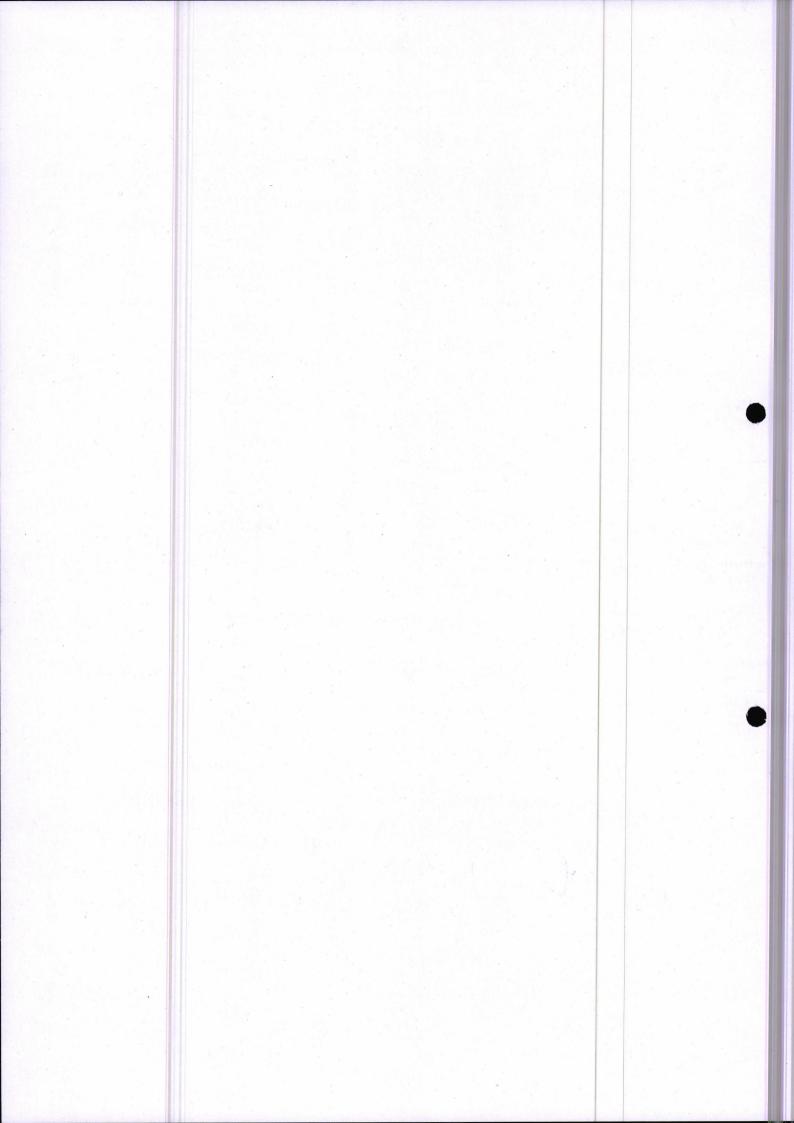
12. Brief Description of self-learning / E-learning component

- 1. https://www.youtube.com/watch?v=Zc0yGQbL9qY
- 2. https://www.youtube.com/watch?v=AxubbuQJ9LU
- 3. https://www.youtube.com/watch?v=emCPoUKNQ0E
- 4. https://www.youtube.com/watch?v=4iCBLgMEoNM
- 5. https://www.youtube.com/watch?v=Wxc-ike51k0
- 6. https://www.youtube.com/watch?v=34JxLDoF6kM
- 7. https://www.youtube.com/watch?v=-x5S4X9mhMM
- 8. https://www.youtube.com/watch?v=p9bmGt1_Pxo

13.Books Recommended

BS th

- 1. Saferstein R. Criminalistics, Prentice Hall, New York, 1990.
- 2. JA Siegel, PJ Saukko. Encyclopedia of Forensic Sciences Vol. I, II and III, Acad. Press, 2000.
- 3. Huber AR. and Headrick, A.M. Handwriting Identification: Facts and Fundamentals CRC LLC, 1999.
- 4. Ellen D. The scientific examination of Documents, Methods and techniques. 2nd ed., Taylor & Francis Ltd., 1997.
- 5. Morris. Forensic Handwriting Identification (fundamental concepts and Principles), 2000.
- 6. Harrison W.R Suspect Documents & their Scientific Examination, Sweet & Maxwell Ltd., London, 1966.
- 7. Hilton O. The Scientific Examination of Questioned Document, Elsevier North Holland Inc., New York, 1982.
- 8. Mehta MK. The identification of Handwriting & Cross Examination of Experts, N.M. Tripathi, Allahabad., 1970.
- 9. Osborn AS. Questioned Documents, Boyd Printing Co., Chicago, 1929



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8. Course Description

Lectures = 00

The practical course emphasizes on learning of basic skills helpful during forensic document examination. The students will get practical exposure on comparison of handwriting found on different surfaces, examination of inks, paper, paperless, photocopied and typewritten documents.

Practical = 52

Blet

9. Course Objectives

- 1. To gain practical knowledge to compare different handwriting or signature samples.
- 2. To develop understanding for detecting forgery in paper and paperless documents.

Tutorials = 00

- 3. To analyze different types of papers and inks for determination of authenticity of the document.
- 4. To perform the analysis of alterations, obliterations and erasures in handwriting samples.

10. Course Outcomes (COs)

Upon successful completion of this course, the students will be able to:

- 1. Gain hands-on experience in analyzing experimental data and interpretation of results.
- 2. Collect, analyze and report different types of questioned documents as evidence in the court of law.
- 3. Examine and compare handwriting, ink and paper samples using various tools and techniques
- 4. Analyze and interpret the observations and opinions ethically and effectively in the form of technical and professional report writing.

11. List of experiments

- 1. To compare handwriting on different surfaces
- 2. To examine document for various types of forgeries.
- 3. To examine and compare different types of Paper using destructive and non-destructive techniques.
- 4. To examine and compare different types of inks using destructive and non-destructive techniques.
- 5. To determine the authenticity of digital signatures.
- 6. To conduct examination of rubber stamps and seals to determine whether it is genuine or not.
- 7. To determine the authenticity of printed documents.
- 8. To determine the authenticity of photocopied documents.
- 9. To determine relative age of ink using destructive and non-destructive techniques.
- 10. To conduct a moot court session for representation of expert witness (questioned documents)

12. Books Recommended

1.DFSS, CFSL and SFSL Manuals.

Astra.

2. Course Name	· ·			L	T	P
	Impression Evidence	e			and the	
3. Course Code	17040515			4	0	0
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8. Course Descrip	xplain various metho	de of davalor	ning laten	t fingerprint	e detection	of fingerprints o
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various types of su	maces and Automatic	ringerprint i	lenninean	on System (AT 15) WIII	be explained.
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10. Course Outco	mes (COs):					
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Fingerprint Detection on Firearms and Cartridge Cases, Fingerprint Detection on Human Skin, Enhancement of Fingerprint in Blood, Optical Techniques, Protein Stains. **Finger-mark Detection on Non-Porous Wet Surfaces:** Small particle reagent

Unit -4	Number of lectures-	Title of the unit: Automated fingerprint identification system
	13	

Introduction, Importance, Structure and Techniques, Search possibilities, Live scan, worldwide Status and Networking.

12. Brief Description of self-learning / E-learning component

- 1. https://www.youtube.com/watch?v=jxoNqSVLZxc
- 2. https://www.youtube.com/watch?v=NDwCkj2tuUc
- 3. https://www.youtube.com/watch?v=2Tgh5GiWZ54
- 4. https://www.youtube.com/watch?v=e06JfudgPEc
- 5. https://www.youtube.com/watch?v=HNuYDIsW-eA
- 6. https://www.youtube.com/watch?v=jFjwKCk4V6I
- 7. https://www.youtube.com/watch?v=ZFStpz0YVOc
- 8. https://www.youtube.com/watch?v=eMgavz0l-Go
- 9. https://www.youtube.com/watch?v=LuRScwzqCss
- 10. https://www.youtube.com/watch?v=vuGufxxbIb4
- 11. https://www.youtube.com/watch?v=yvvOOKG-jCc

13. Books Recommended

- 1. Moenssens, A. A. (1971). Fingerprint techniques (pp. 174-193). London: Chilton Book Company.
- Kanbar, A. B. (2016). Fingerprint identification for forensic crime scene investigation. International Journal of Computer Science and Mobile Computing, 5(8), 60-65.
- 3. Ramotowski, R. (Ed.). (2012). Lee and Gaensslen's advances in fingerprint technology. CRC press.
- 4. Daluz, H. M. (2018). Fundamentals of fingerprint analysis. CRC Press.
- Ratha, N., & Bolle, R. (Eds.). (2003). Automatic fingerprint recognition systems. Springer Science & Business Media.

Asha

	Advanced Fingerprint and Other Impression Evidence Lab			L	T	P
3. Course Code	17040516			0	0	4
4. Type of Course (use tick mark)		Core()	DSE (✓)	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even ()	Odd(√)	Either Sem ()	Every Sem ()
	of Lectures, Tutorial					
Lectures = 00		Tutorials =	00 ·	Practical	= 52	
8. Course Descrip				and the second		
This course empha	sizes on learning of b	basic skills hel	pful for st	udents in th	e report for	mation for cour
of law. It include	es studying comparis	on Fingerprin	nt and det	tection of t	fingerprint	on Porous/non-
porous/adhesive su	irfaces.				_	and the second second second
9. Course Objecti	ves					
1 To underst	and the concept of det	ection of fing	er mark or	different s	urfaces	
	how to report cases in			i different s	urraces.	
	skills for taking phot			nt of develo	ned fingerr	rint
5. To develop	skins for taking prot	ography and c	imaneeme	int of develo	ped inger	/int
10. Course Outco	mes (COs):					
Upon successful co	ompletion of this cour	se, the student	ts will be a	ble to:		
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types of sur 3. Analyse ar photograph 4. Acknowled	rfaces. ad put up scientific y of fingerprints. lge with ethics of repo	Reasoning				
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1. Name of the De	partment: Forensi	c Science				
2. Course Name	Introduction to Co		sics '	L	Τ	P
3. Course Code	17040517		T.	4	0	0
4. Type of Course	(use tick mark)	Core ()	DSE (*)	AEC ()	SEC ()	OE ()
5. Pre-requisite	10+2 with	6.	Even ()	Odd(√)	Either	Every Sem ()
(if any)	Science stream.	Frequency			Sem ()	
		(use tick marks)				
7. Total Number o	f Lectures, Tutori	als, Practical				
Lectures = 52		Tutorials =	00	Practical	= 00	
responder and Searc of Windows Syste highlighted. 9. Course Objectiv The objectiv 1. To impart fu	xplain about the ac ch and Seizure of V ms Artifacts, Linu	olatile and Nor s Systems Ar e to: nced aspects o	n-volatile I tifacts and f Digital Ev	Digital Evid I Cloud Te idence.	lence. In ad	dition, the process
3. To describe	Cyber Crime, Inter ail for assessment on nes (COs):	nal and Extern of cyber crime.	al Attacks,	, ATM and		rauds.
 Critically th Analyze and 	ciplinary knowledg ink and develop pro l scientifically asses nk and solve proble led content	blem solving s forensic tools	in advance s for Recov	ery of Dele	ted, Hidder	and Altered files.
Unit-1	Number of	Title of the u	unit: Intro	oduction to	Compute	r Hardware
Various Component components. Unde Introduction to File Unit – 2	rstanding Compute	er Operating of File System	Systems ((OS), Boot	ting proces	
Web Proweever Co		r Doolemorka	Casha See	aion Data -	nd Diversion	
Web Browsers: Co Email: Types of E Mails. Virtual Mach	mail and Protocols	. Analysing th	e Header		<u> </u>	
Unit – 3 Windows Systems	Number of lectures-13	Title of the Artifacts				Aac OS Systems
Windows Systems Data Streams (ADS			, Event log		٥	
vli	degt	Aste		f.	B.loli	

Accou	x System and Artifacts: Linux file system: Ownership and Permissions, Hidden Files, Use ints and Logs.
	OS X systems and Artifacts: System Startup and Services, Network Configuration, Hidde
	ories, System Logs and User Artifacts
Unit -4	4 Number of Title of the unit: Cyber Crime, First Responder and oth lectures-13 forensic investigations
Cvber	· Crime- Form of Cyber Crime, Internal and External Attacks, Crimes related to social media
	and Banking Frauds. Data Privacy issues, Packet sniffing, Spoofing, Web security.
	responder - role and toolkit. Procedure for search and seizure of digital evidences. Search an
	e of Volatile and Non-volatile Digital Evidence. Imaging and Hashing Digital Evidence. Analysin
	ecovery of Deleted, Hidden and Altered files.
Other	tools used for: Data Recovery, Evidence Collection and Data Seizure, Duplication an
	vation of Digital Evidence, Computer Image Verification and Authentication
Comp	uter forensic investigations: Developing Forensic Capabilities, Searching and Seizing Computer
Relate	d Evidence, Processing Evidence and Report Preparation – Future Issues.
2. Br	ief Description of self-learning / E-learning component
1.	https://www.youtube.com/watch?v=qfUZBKDh9BY
2.	https://www.youtube.com/watch?v=vBURTt97EkA
	https://www.youtube.com/watch?v=dRKMIG0KTkY
4.	
5.	https://www.youtube.com/watch?v=pjh4HjW9D-A
6.	https://www.youtube.com/watch?v=AuYNXgO f3Y
7.	https://www.youtube.com/watch?v=RTtKXBLLGS0
8.	https://www.youtube.com/watch?v=HbgzrKJvDRw
3. Bo	ooks Recommended
1	Bolle R.M., Connell J.H., Pankanti S., Ratha N.K. and Senior A.W. (2004), Guide to Biometrics
	Springer publications.
2	Goyal R.M. and Pawar M.S. (1994), Computer crimes- concept, control and prevention, Sysma
	Computer Pvt. Ltd.
3.	
5.	Springer. Page 40 of 48
4.	Joakim Kävrestad. Guide to Digital Forensics: A Concise and Practical Introduction, Springe
	2017
5.	John D.W. and Nicholas M.O. (2002), Biometrics: Identity Assurance in the Information age
	McGraw Hill.
6.	Lee Reiber. Mobile Forensic Investigations: A Guide to Evidence Collection, Analysis, and
	Presentation, 1st edition, McGraw-Hill 2016
7.	
	Marie-Helen Maras. Computer Forensics: Cybercriminals, Laws, and Evidence, 2nd edition
	Jones & Bartlett Learning 2015
9.	NCJRS Library collection, Best practices for seizing electronic evidence v.3: A Pocket Guide for
	First Responders, US department of Homeland Security.
10.	. Robert Moore. Cybercrime: Investigating High-Technology Computer Crime,2nd edition
	Routledge 2015
11.	. Special Report (2nd Edition), Electronic Crime Scene Investigation: A Guide for First
	Responders, NIJ publication.
12.	. Special Report, Forensic Examination of Digital Evidence: A Guide for Law Enforcement, NI
	Publication.
12	Sridhar S. (2011), Digital Image Processing, Oxford University Press.
15.	

2. Course Name	Introduction to C	Computer Fore	nsics Lab	L	Т	P
. Course Code	17040518			0	0	4
. Type of Course (1		DSE (✓)	AEC ()	SEC ()	OE ()	
. Pre-requisite	10+2 with	6.	Even ()	Odd(✓)	Either	Every Sem
(if any)	Science stream.	Frequency			Sem ()	
		(use tick				e *
		marks)		1		
	Lectures, Tutorial		0.0	Derital	50	
Lectures = 00		Tutorials =	JU	Practical	= 52	
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	platform to image d	ata storage me	dia device	s.		
	eleted files and Pass					
	dences from mobile					
0. Course Outcome	es (COs):				¥	
bon successful com	pletion of this cours	se, the students	s will be al	ble to:	-	
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	nary Knowledge to a					the yord.
2. Gain discipli	ing into the uge to t	create imaging				
	ted files and Passwo		of data sto	orage media		
3. Recover delet		ord of encrypte	of data sto d files and	orage media		
3. Recover delet	ted files and Passwo for the process of Se	ord of encrypte	of data sto d files and	orage media		
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2. Course Name	Cyber Securi Protection	ity and Data	L	Τ	P	
3. Course Code	17040519	2	4	0	0	
4. Type of Course mark)	(use tick	Core ()	DSE (✔)	AECC()	SEC ()	
5. Pre-requisite (if any)	10+2 with Science stream	6. Frequency (use tick marks)	Even O	Odd (✓)	Either Sem ()	Every Sem ()
7. Total Number of	of Lectures, Tu	torials, Practicals				
Lectures = 52		Tutorials = 00	Practical :	= 00		

8. Course Description

In this course, the students will be able get knowledge about cyber space, cyber-crime and malwares. The students will also understand about cyber security and various data protection technologies.

9. Course Objectives

- 1. To gain understanding of cyber space and cyber-crime.
- 2. To acquire knowledge about various types of cyber-crimes and malwares.
- 3. To understand the concepts computer and cyber security .
- 4. To acquaint students with data protection technologies

10.Course Outcomes (COs)

Upon successful completion of this course, the students will be able to

- 1. Understand and apply the knowledge of cyber-crimes and malwares for prevention of crime
- 2. Critically analyze the situations related to breach of cyber security and take appropriate actions.
- 3. Collate and interpret scientific information for writing research and review articles.
- 4. Practice professional ethics while dealing with cyber-crime cases.

11.Unit wise detailed content

Unit-1	Number of lectures =	Title of the unit: Introduction to Cyber Space			
	10				

Computer characteristics and classification, hardware and software, Networking and internet concepts, History of Internet, Cyberspace, Cyber security, Cyber-crime, Information security, computer ethics and security policies

Unit-2 Number of lectures = Title of the unit: Cyber-crime and malwares 13

Definition and types of computer crimes. Distinction between computer crimes and conventional crimes. Reasons for commission of computer crimes. Breaching security and operation of digital systems. Computer virus, and computer worm – Trojan horse, trap door, super zapping, logic bombs. Types of computer crimes – computer stalking, pornography, hacking, crimes related to intellectual property rights, computer terrorism, hate speech, private and national security in cyber space. An overview of hacking, spamming, phishing and stalking.

Unit-3	Number of lectures =	Title of the unit: Cyber Security	
	14		
Computer	Security Concepts Inform	ation Security Aspects (Security Attacks Security N	lechanism

Computer Security Concepts, Information Security Aspects (Security Attacks, Security Mechanism, Security Services), Computer Security Objective, CIA Triad, Breach of Security Levels of Impact, OSI Security Architecture, Model for network Security.

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Unit-4	Number of lectures = Title of the unit: Data Protecting Technologies 15
Scope of I	Data Recovery, Forensic Significance of Data Protection, Data Protecting Technologies [SMAR]
	ke Protecting Technology), DFT(Discrete Fourier Transform)], Cryptography; Types of Ciphers
Encryptio	n, Decryption, Digital Watermarking, Digital Signatures.
2.Brief I	Description of self-learning / E-learning component
1. htt	tps://www.youtube.com/watch?v=ZUqzcQc_syE
	tps://www.youtube.com/watch?v=nMYapL6RQzU
	tps://www.youtube.com/watch?v=1z0ULvg_pW8
	tps://www.youtube.com/watch?v=bA8Z0mfa5xg
	tps://www.youtube.com/watch?v=a02vGdZ2Mog
6. ht	tps://www.youtube.com/watch?v=J2c3th4FY-w
	tps://www.youtube.com/watch?v=NmuhGa4QekU
8. ht	tps://www.youtube.com/watch?v=7cJMs8XCm0Y
9. ht	tps://www.youtube.com/watch?v=QQ9ZLlj36qs
	Recommended
1. R.	K. Tiwari, P.K. Sastry and K.V. Ravikumar, Computer Crimes and Computer Forensics, Select
	ablishers, New Delhi (2003).
2. C.	B. Leshin, Internet Investigations in Criminal Justice, Prentice Hall, New Jersey (1997).

- 3. R. Saferstein, Criminalistics, 8th Edition, Prentice Hall, New Jersey (2004).
- 4. E. Casey, Digital Evidence and Computer Crime, Academic Press, London (2000).

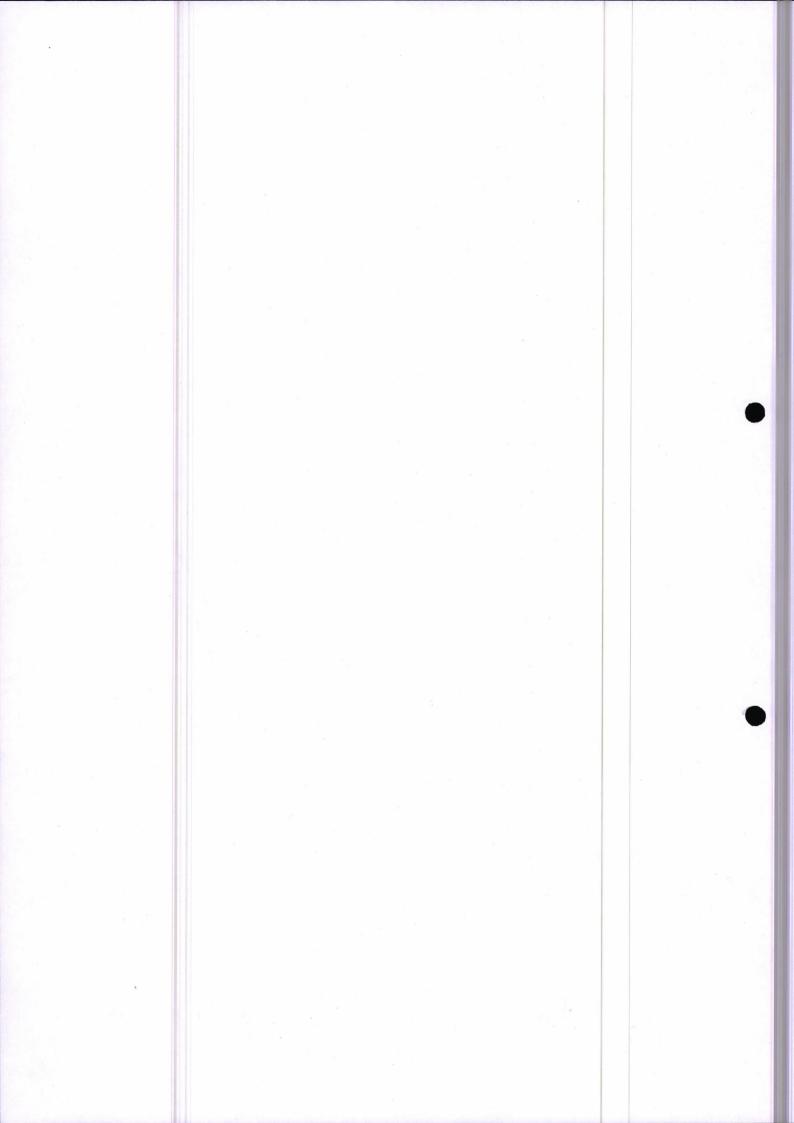
18.1c82 peha Rsegh l

Course Name	Cyber Security	and Data Protectio	n Lah	L	Т	P
. Course Code	17040520	and Data Frotectio		0	0	4
Type of Course		Core ()	DSE (🗸)	AEC ()	SEC ()	OE ()
. Pre-requisite	10+2 with	6. Frequency	Even ()	$\frac{\operatorname{NLC}}{\operatorname{Odd}}(\checkmark)$	Either	Every
(if any)	Science	(Use tick	Liven ()	Ouu (·)	Sem ()	Sem ()
	stream	marks)	Sec. 11			
. Total Number o				1		
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. Course Descript	ion:		*	Tructicut	52	
revention. The stu ata protection tech	dents will also un nologies.	le get practical kno nderstand and get l				
: Course Objectiv	ves:					
	tical knowledge					
		nds on training in	analysis of d	igital eviden	ice	
	nd the concepts c					
4. To acquaint		a protection techno	ologies			
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0.Course Outcom						
		ourse, the students	will be able	to		2
Jpon successful con	mpletion of this c					
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Jpon successful con 1. Understand 2. Critically an	mpletion of this c and apply the kno alyze the situatio	owledge of digital on srelated to breact	crime for pre h of cyber se	vention of c curity and ta	ike appropri	ate actions.
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1. Name of the Depar	rtment: Forensic Scie	nce				
2. Course Name	Forensic Odontology			L	Τ	Р
3. Course Code	17040601			4	0	0
4. Type of Course (us	se tick mark)	Core (✓)	DSE ()	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream.	e 6. Even . Frequency (✓) (use tick marks)		Odd()	Either Sem ()	Every Sem ()
7. Total Number of L	Lectures, Tutorials, Pi	ractical				
Lectures = 52		Tutorials = 00		Practical	= 00	
8. Course Description	n:					
 To develop critica To develop analyt To develop a prob 10. Course Outcomes Upon successful comp The basic fundame The importance of The various aspect 	eletion of this course, substantials of forensic odontology in s related to bite marks	ning odontologi ng by analysing of studying differ tudents will be a ology n forensic field	cal eviden evidences ent cases o	and interpr	eting their f	crimes. inal results.
4. The various aspect 11. Unit wise detailed	11					
Unit-1	Number of lectures : 13	Title of the un	it: Basics	s of Forens	ic Odontol	ogy
Fundamentals of Forei evidences (Dental char						ological
Unit – 2	Number of lectures : 13	Title of the Odontology	unit: 1	Forensic	significance	e of Forensic
Estimation of age a Individualisation of to						nd morphology.
Unit – 3	Number of lectures : 13	Title of the un	it: Bite n	arks		
Biles	h f	Segles	Asta	V	-3-	100



Definition, types, nature and formation of bite marks, Medicolegal aspects of bite marks, collection & preservation, documentation and analysis of bite marks evidences, report writing of bite marks evidences.

Unit -4	Number	of	lectures	Title	of the unit:	Cheiloscopy	
	: 13			2			

Definition, types, nature and formation of lip prints, Medicolegal aspects of lip prints, collection & preservation, documentation and analysis of lip print evidences and report writing.

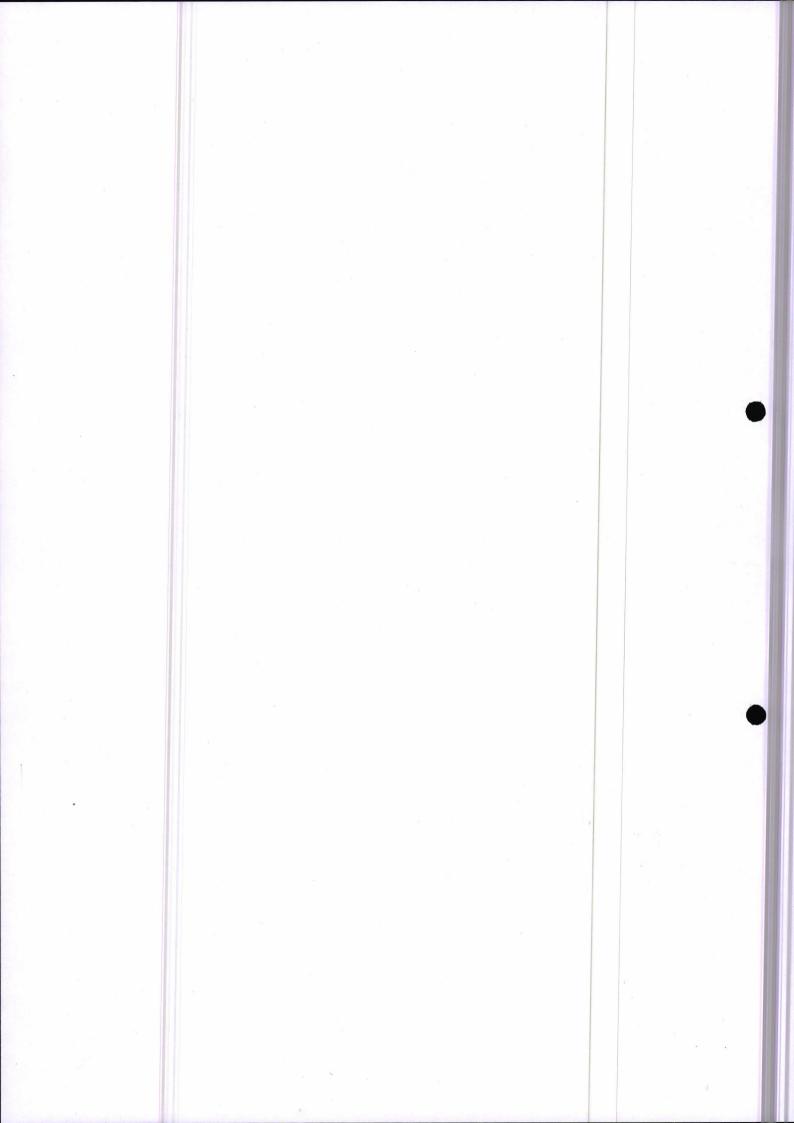
12. Brief Description of self-learning / E-learning component

- 1. https://www.dentalage.co.uk/wp-content/uploads/2014/09/aafs_odontology_ebook2011-2012.pdf
- 2. https://www.perlego.com/book/1478031/manual-of-forensic-odontology-pdf
- 3. <u>http://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/Forensic_Science/14.</u> Forensic_medicine/05. Forensic_odontology/et/4704_et_4704_et_05et.pdf
- 4. <u>https://www.youtube.com/watch?v=m_sa3Su_eyQ</u>
- 5. <u>https://www.youtube.com/watch?v=8aDT55421LQ</u>

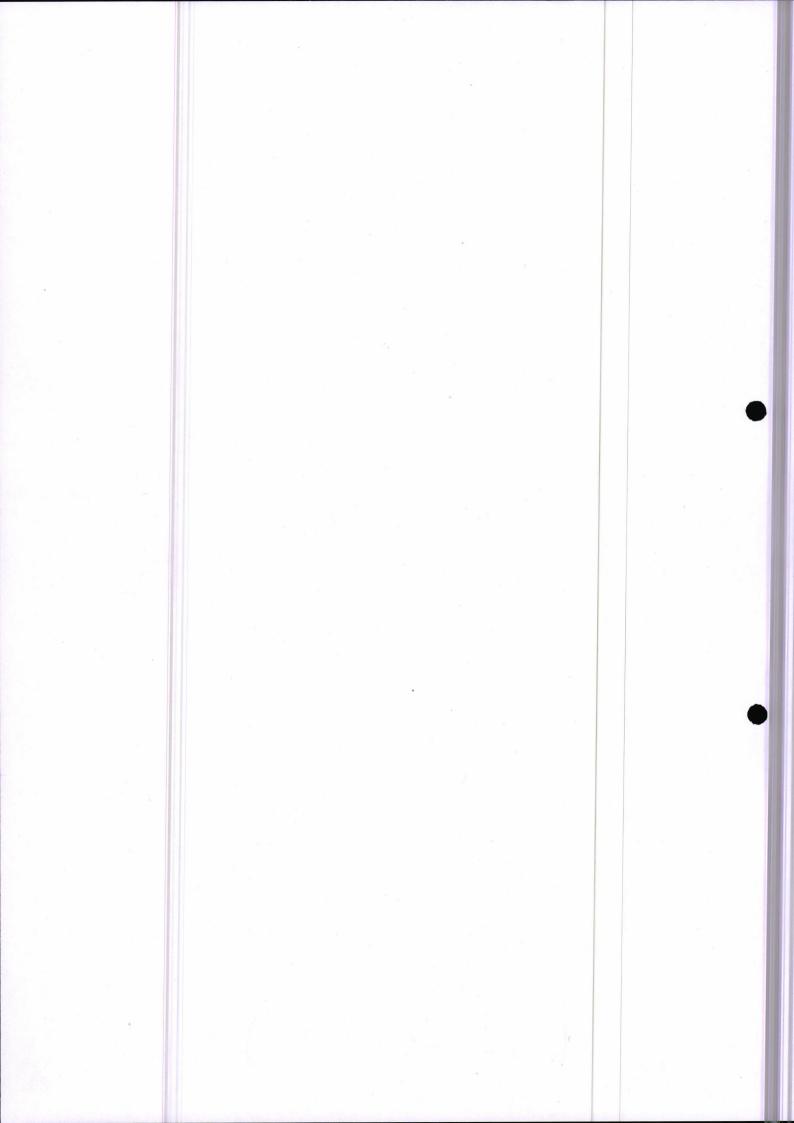
3. Books Recommended

- 1. Forensic Dental evidence, Mike Bowers, Elsevier Publ
- 2. Forensic Radiology, B.G.Brogdon, 2nd Ed, CRP Press, 2010
- 3. Forensic Radiology, B.G. Brogdon, 1st Ed, CRP Press, 1998
- 4. Bite Mark Evidence, Robert BJ Dorian, 1st Ed, CRP Press, 2004
- 5. Dental Autopsy, William E Silver, Richard R Souviron, 1st Ed, CRP Press, 2009
- 6. Forensic Dentistry, Senn DR and PG Simson, 2nd Ed, CRP Press, 2010
- 7. Forensic Photography, Sanford L Weiss, 1st Ed, Prentice Hall, 2008
- 8. Manual of Forensic odontology, Herschaft EE, Alder ME, Ord DK, Rawson RD & Smith ES, 4th Ed
- 9. A color atlas of forensic dentistry, Whittaker DK and Mc Donald DG, 1st Ed, Mosby Yr Book, 1989
- 10. Digital analysis of bite mark evidence, RJ Johanson & Bowers CM
- 11. Forensic dentistry, PG Simson & Mertz CA, 1st Ed, CRP Press, 1997
- 12. Computer graphic facial reconstruction, JG Clemat, MK Marks, Elsevier, 2010
- 13. Forensic facial reconstruction, C.Wilkinson, 1st press, Cambridge univ press, 2008
- 14. Forensic odontology, G Willams, Leuven Univ Press, 2000
- 15. Practical forensic odontology, DH Clark, Butterworth-Heinemman Publis
- 6. Forensic odontolgy, G Gustafson, 1st Ed, Elsevier, 1966
- 17. Text Book of Forensic odontology, Yadav, Globalmedik, 2010
- 18. Text book of Oral Pathology, Shafer, Hine and Levy, 4th,5th,6th Ed
- 19. Text book of Oral Pathology, Neville, Allan, Bouquot, 3rd, 4th Ed, Elsevier
- 20. Text book of Oral Pathology, Regezzi, Schuibba, 5th and 6th Ed, Elsevier

BEW



2. Course Name	Forensic Odontology I			L	T	P	
3. Course Code	17040602			0	0	4	
4. Type of Course (1	ise tick mark)	Core (✓)	DSE ()	AEC ()	OE ()		
				· · · ·	SEC ()	~	
5. Pre-requisite (if any)	10+2 with Science stream.	6.EvenFrequency(✓)(use tickmarks)		Odd()	Either Sem ()	Every Sem ()	
7. Total Number of	Lectures, Tutorials, Pra	ictical					
Lectures = 00		Tutorials =	00	Practical	= 52		
8. Course Description	on:						
 To develop critica To develop analyt To develop a prob To develop a prob Course Outcome Upon successful com The basic fundam The importance of 	pletion of this course, stu entals of forensic odonto f forensic odontology in f	ng odontologic by analysing e tudying differe dents will be a logy forensic field	cal evidences evidences ent cases o	and interpro	eting their fi	crimes. nal results	
 The various aspec The various aspec 	ts related to bite marks as ts of Cheiloscopy	s a evidences					
11. Practicals							
1. To study the form	ation and structure of too	oth.					
2. To collect and exa	amine bitemarks on differ	ent surfaces.					
3. To collect and exa	amine lip prints on variou	s surfaces.					
4. To study and prep	are a case report on exam	nination of den	tal eviden	ces.			
5. To estimate age fr	om dental remains.						
6. To determine sex	from dental remains.						
RS	f Is	ogh	Asha	A	11	State	



- 7. To prepare and study a dental cast for forensic importance.
- 8. To prepare a case report on DNA analysis from odontological evidences.

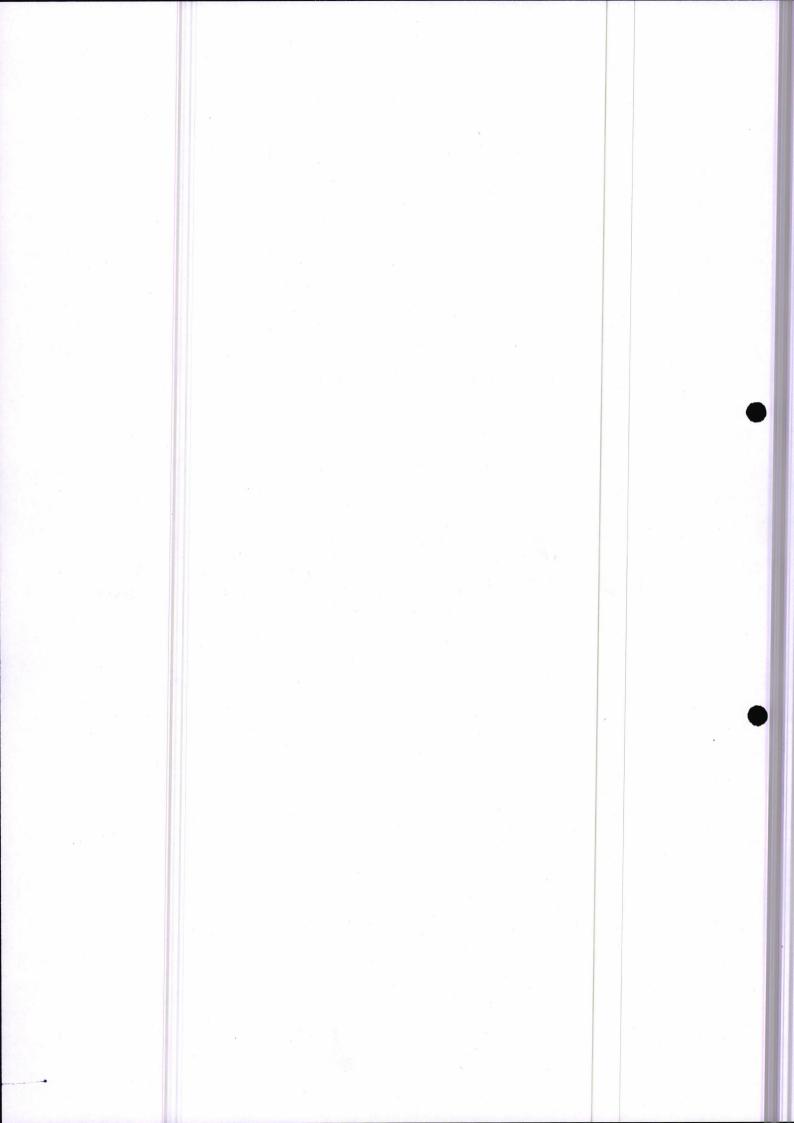
12. Brief Description of self-learning / E-learning component

- 1. https://www.kenhub.com/en/library/anatomy/the-teeth
- 2. <u>https://www.youtube.com/watch?v=8aDT5542ILQ</u>
- 3. <u>https://www.youtube.com/watch?v=a1AjWnzybOo</u>
- 4. <u>https://www.youtube.com/watch?v=3hgz0Bq3exQ</u>
- 5. <u>https://www.youtube.com/watch?v=1jPzIAntrTQ</u>
- 6. <u>https://www.youtube.com/watch?v=Qw1rJhyMHog</u>

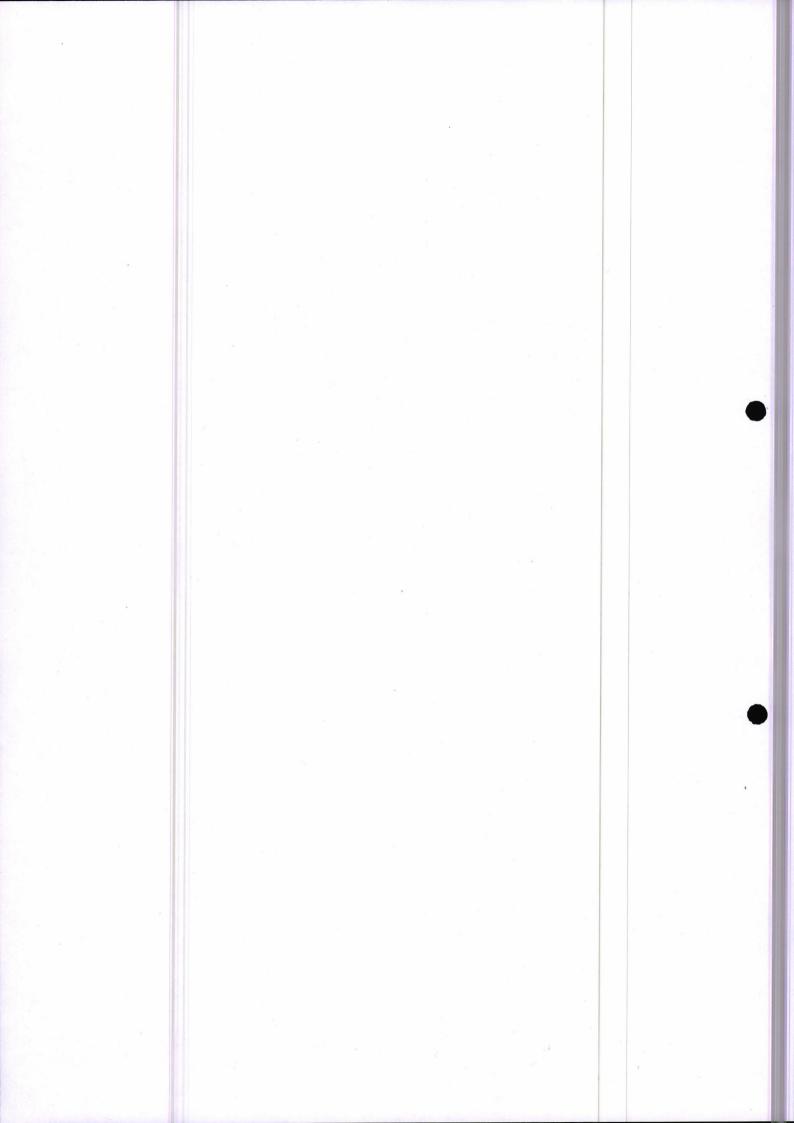
13. Books Recommended

- 1. Forensic Dental evidence, Mike Bowers, Elsevier Publ
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- 3. Forensic Radiology, B.G. Brogdon, 1st Ed, CRP Press, 1998
- 4. Bite Mark Evidence, Robert BJ Dorian, 1st Ed, CRP Press, 2004
- 5. Dental Autopsy, William E Silver, Richard R Souviron, 1st Ed, CRP Press, 2009
- 6. Forensic Dentistry, Senn DR and PG Simson, 2nd Ed, CRP Press, 2010
- 7. Forensic Photography, Sanford L Weiss, 1st Ed, Prentice Hall, 2008
- 8. Manual of Forensic odontology, Herschaft EE, Alder ME, Ord DK, Rawson RD & Smith ES, 4th Ed
- 9. A color atlas of forensic dentistry, Whittaker DK and Mc Donald DG, 1st Ed, Mosby Yr Book, 1989
- 10.Digital analysis of bite mark evidence, RJ Johanson & Bowers CM

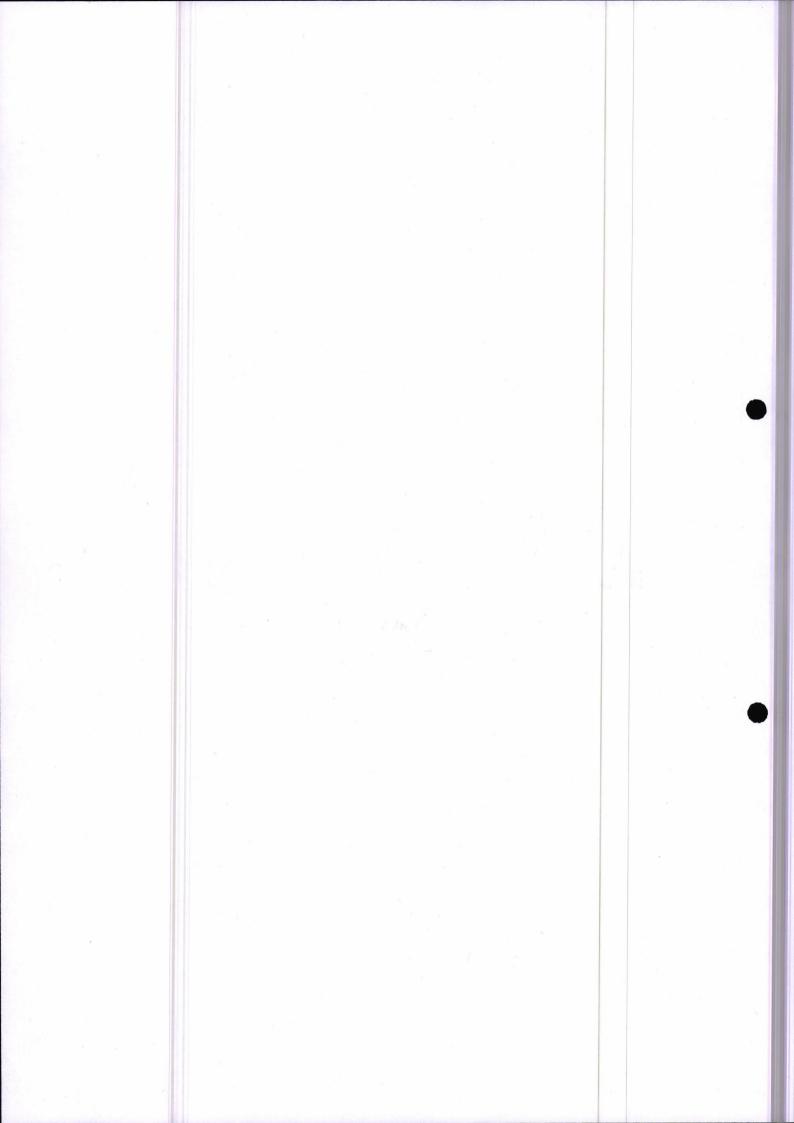
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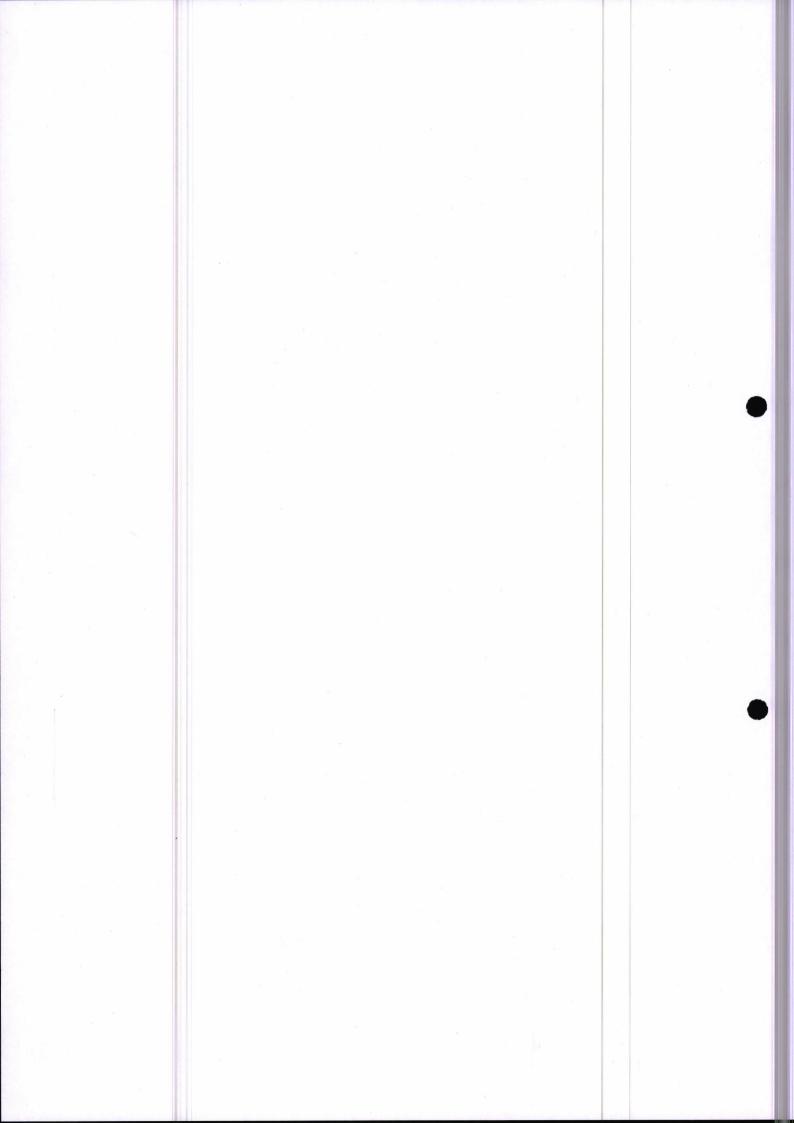
1. Name of the De	partment: Forensic S	ciences				· · ·
2. Course Name	Forensic Anthropolog			L	Т	Р
3. Course Code	17040603			4	0	0
4.Type of Course		Core (√)	DSE ()	GE ()	SEC ()	0
5. Pre-requisite	10+2 with Science	6.	Even	Odd ()	Either Sem	Every Sem
(if any)	stream.	Frequency	(\mathbf{v})	044 ()		
		(use tick				V
		marks)		- 25, 200 		
7. Total Number of	of Lectures, Tutorials	, Practical				
Lectures = 52		Tutorials = 0	0	Practica	l = 00	
8. Course Descrip						
This is core paper forensic anthropolo	in Forensic Science. T ogy, its concepts and its	he student will s role in forens	be able to c investig	o know abo ation.	out the basic k	nowledge of
9. Course Objectiv	ves:					
1. To provide the	knowledge of osteolog	y and forensic	anthropolo	ogy.		
2. To understand t	he scope of forensic ar	nthropology	-1	0,		
	ferent aspect of biolog		funknow	n skeletal r	emains.	
	he concept of populat	ion variation us	sing somat	ometric an	d somatoscopi	ic
techniques						
10. Course Outcon	mes (COs):					
	ompletion of this course					
	the disciplinary knowl					
	l thinking and problem	solving strateg	ies in real	life forens	ic cases involv	ving skeletal
remains.						
3. Develop analyti	cal and scientific reaso	oning by exami	ning the sl	celetal rem	ains.	
	alyse and interpret the s	skeletal indicat	ors of sex,	age, race a	and stature, wh	nich will
help in biologic 11. Unit wise detai						
Unit-1	Number of			Introduct	ion to Oste	eology and
Intro to Osteology		anthropology		true age Day		
and size of bones	Anatomical Terminolo ; Causes of populat	ion variation:	Eorensic	Anthropol	ogy: History	of Ecropsic
Anthropology: Sco	pe of forensic anthrop	ology Study of	f human sl	celeton (Ne	ature bone for	mation and
identification of hu	man bones (Skull, pelv	vis and long bo	ne mornho	logy)	ature, bone for	mation, and
Unit – 2		Title of the u			ling	
	lectures = 13			-	0	
Biological profiling	g in skeletal remains;	Sex estimation	from ski	ill, pelvis,	sternum, long	, bones; age
estimation from sk	cull (Sutures, teeth) and	nd long bones	; Stature	estimation	from long be	ones; Racial
	skull; Genetic and co	ongenital bone	anomalies	s – causes	, types, identi	fication and
their forensic signif		T:41. 64	•4. 0			
Unit – 3	lectures = 13	Title of the u				
Somatoscopy – obs	ervation of hair on hea	d, forehead, ey	es, root of	nose, nasa	l bridge, nasal	tip, chin,
Darwin's tubercle,	ear lobes, supra-orbital	ridges, physio	gnomic ea	r breadth,	Scar marks an	d
occupational marks						
	asurements of head, fac		ear, hand	and foot, l	body weight, h	eight.
maices - cephalic in	ndex, nasal index, facia	il index.				
	·l~	Hegh	Ad	kg 1	d.	Jull



Unit – 3	Number of lectures = 13	Title of the unit: Facial Reconstruction
Cranio facial su	per imposition techniques	denti kit, Facial superimposition techniques. – photographic super imposition, video-superimposition, rtance of tissue depth in facial reconstruction
12. Brief Descr	iption of self learning / H	E-learning component
	youtube.com/watch?v=T	
	.youtube.com/watch?v=	
	youtube.com/watch?v=ar	
	youtube.com/watch?v=P.	
5. https://www.	youtube.com/watch?v=B	I4_KInZrBU
13. Books Reco	mmended	
 Charles C. T Krishan Vij. Principles an Schmitt, E. C Sciences Fro 	homas, Springfield. Textbook of Forensic Me d Practice Fifth Edition, I Cunha, and J. Pinheiro (Ec m Recovery to Cause of I	 6) The Human Skeleton in Forensic Medicine. 2nd Edition, edicine Forensic Medicine and Toxicology and Toxicology Elsevier, 2011. ls.) Forensic Anthropology and Medicine: Complementary Death. Humana Press Inc., Totowa, NJ cine and toxicology. Paras publications.
ß	2 h	Asex Asta



3. Course Code	Forensic Anthro	opology Lab		L	Τ	Р
	17040604			0	0	4
4. Type of Course		Core (√)	DSE ()	AEC ()	GE ()	OE ()
5. Pre-requisite (if any)	10+2withSciencestream.	6. Frequency (use tick marks)	Even (√)	Odd ()	Either Sem ()	Every Sem ()
7. Total Number of	f Lectures Tutor	ials Practicals	L,			
Lectures $= 00$	Lectures, rutor	Tutorials = 00		Practica	1 = 52	
8. Course Descript	ion:					
This core course ap	oplies the method	lology and goals of	of physical	l anthropol	ogy to med	lical and lega
issues in forensic an			knowledg	e of differe	ent methods	of creating th
biological profiling		an remains.				
9. Course Objectiv 1. To understand the		examination of here	non horas	·		
		bility in human bo				
		e of unknown hum		s.		
		ifferent anthropolo				
10. Course Outcon		F F •	0			
Upon successful con	npletion of this co	ourse, the student w	vill be able	to:		
 Evaluate the poter remains in foren 	entials and limitat sic contexts.	nal methods of ide ions of the scientif				
11. Unit wise detail	ed content					
Practical						
1. To study the more			ontalis and	l norma lat	eralis positio	on.
	sexual differences					
	phology of huma					
1 To common the						
-	are of human alay					
5. To estimate the a			nale skull	(Max crani	al length an	d breadth
5. To estimate the a 5. To measure the c	raniofacial variab	les of male and fer			al length an	d breadth;
 To estimate the a To measure the c nasal height and 	craniofacial variab breadth, Facial he		atic breadt	h).	al length an	d breadth;
 To estimate the a To measure the c nasal height and To study the long To study the long 	braniofacial variab breadth, Facial he g bones of upper e g bones of lower e	eles of male and fer eight and byzygoma extremities (Humer extremities (Femur	atic breadt us, radius , Tibia and	h). and ulna). fibula).		
 To estimate the a To measure the c nasal height and To study the long To study the long To study measure 	eraniofacial variab breadth, Facial he g bones of upper e g bones of lower e e the long bones:	eles of male and fer right and byzygoms extremities (Humer extremities (Femur, lengths, minimum/	atic breadt us, radius , Tibia and least circu	h). and ulna). fibula).		
 To estimate the a To measure the one nasal height and To study the long To study the long To study measure To study measure To estimate the s 	braniofacial variab breadth, Facial he g bones of upper e g bones of lower e e the long bones: tature of individu	eles of male and fer eight and byzygoma extremities (Humer extremities (Femur, lengths, minimum/ al using long bone	atic breadt us, radius , Tibia and least circu (Femur).	h). and ulna). I fibula). mference a	nd caliber in	ndex.
 To estimate the a To measure the c nasal height and To study the long To study the long To study the long To study measur To estimate the s To measure the C 	eraniofacial variab breadth, Facial he g bones of upper e g bones of lower e e the long bones: tature of individu Cephalometric var	eles of male and fer eight and byzygoms extremities (Humer extremities (Femur, lengths, minimum/ al using long bone iables of males and	atic breadt us, radius , Tibia and least circu (Femur). l females (h). and ulna). I fibula). mference a Maximum	nd caliber ir head length	ndex. , Maximum
 To estimate the a To measure the ornasal height and To study the long To study the long To study the long To study measure To estimate the s To measure the ornasal head breadth, Ma 	craniofacial variab breadth, Facial he g bones of upper e g bones of lower e e the long bones: tature of individu Cephalometric var aximum bizygom	eles of male and fer eight and byzygome extremities (Humer extremities (Femur, lengths, minimum/ al using long bone iables of males and atic breadth, Nasal	atic breadt us, radius , Tibia and least circu (Femur). l females (h). and ulna). I fibula). mference a Maximum	nd caliber ir head length	ndex. , Maximum
 To estimate the a To measure the one nasal height and To study the long To study the long To study the long To study measure To estimate the s To measure the one head breadth, Ma height) and obset 	craniofacial variab breadth, Facial he g bones of upper e g bones of lower e e the long bones: tature of individu Cephalometric var aximum bizygom rve the differences	eles of male and fer eight and byzygome extremities (Humer extremities (Femur, lengths, minimum/ al using long bone iables of males and atic breadth, Nasal	atic breadt us, radius , Tibia and least circu (Femur). l females (length Na	h). and ulna). I fibula). mference a (Maximum isal breadth	nd caliber ir head length , Morpholog	ndex. , Maximum
 To estimate the a To measure the c nasal height and To study the long To study the long To study the long To study measure To estimate the s To measure the C head breadth, Ma height) and obser To calculate the 	eraniofacial variab breadth, Facial he g bones of upper e g bones of lower e e the long bones: tature of individu Cephalometric var aximum bizygom rve the differences cephalometric ind	eles of male and fer eight and byzygome extremities (Humer extremities (Femur, lengths, minimum/ al using long bone iables of males and atic breadth, Nasal	atic breadt us, radius , Tibia and least circu (Femur). l females (length Na	h). and ulna). I fibula). mference a (Maximum isal breadth	nd caliber ir head length , Morpholog	ndex. , Maximum
 To estimate the a To measure the c nasal height and To study the long To study the long To study the long To study measure To estimate the s To measure the C head breadth, Ma height) and obset To calculate the Books Recomm 	craniofacial variab breadth, Facial he g bones of upper e g bones of lower e e the long bones: tature of individu Cephalometric var aximum bizygom rve the differences cephalometric ind ended	eles of male and fer eight and byzygome extremities (Humer extremities (Femur, lengths, minimum/ al using long bone iables of males and atic breadth, Nasal	atic breadt us, radius , Tibia and least circu (Femur). l females (length Na asal and Fa	h). and ulna). I fibula). mference a (Maximum usal breadth ucial indice	nd caliber ir head length , Morpholog s).	ndex. , Maximum gical facial

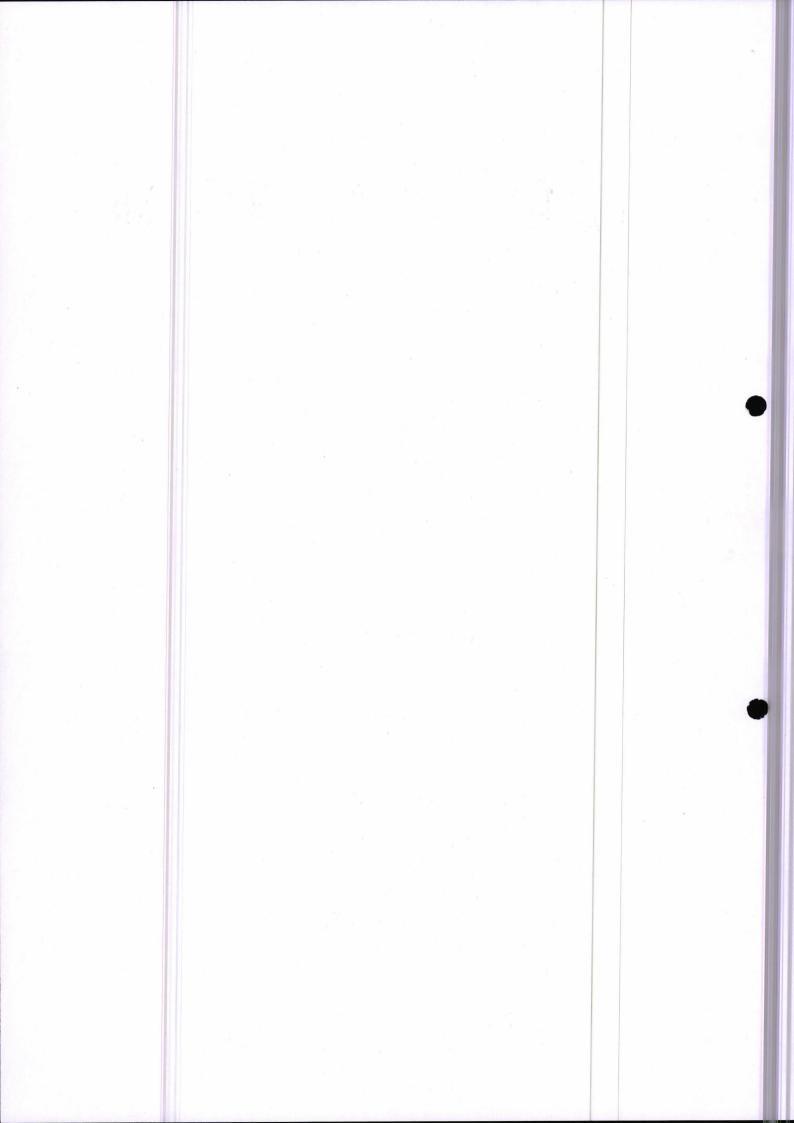


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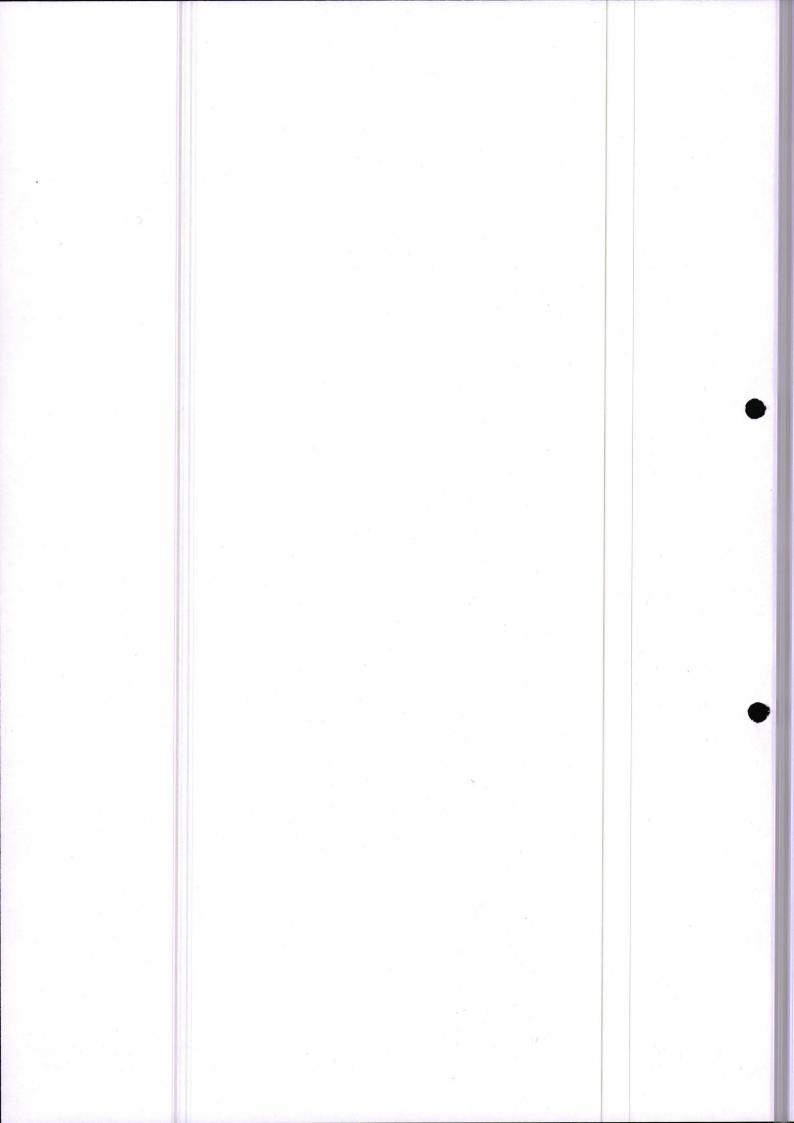
2. DFS Manuals of Forensic Science

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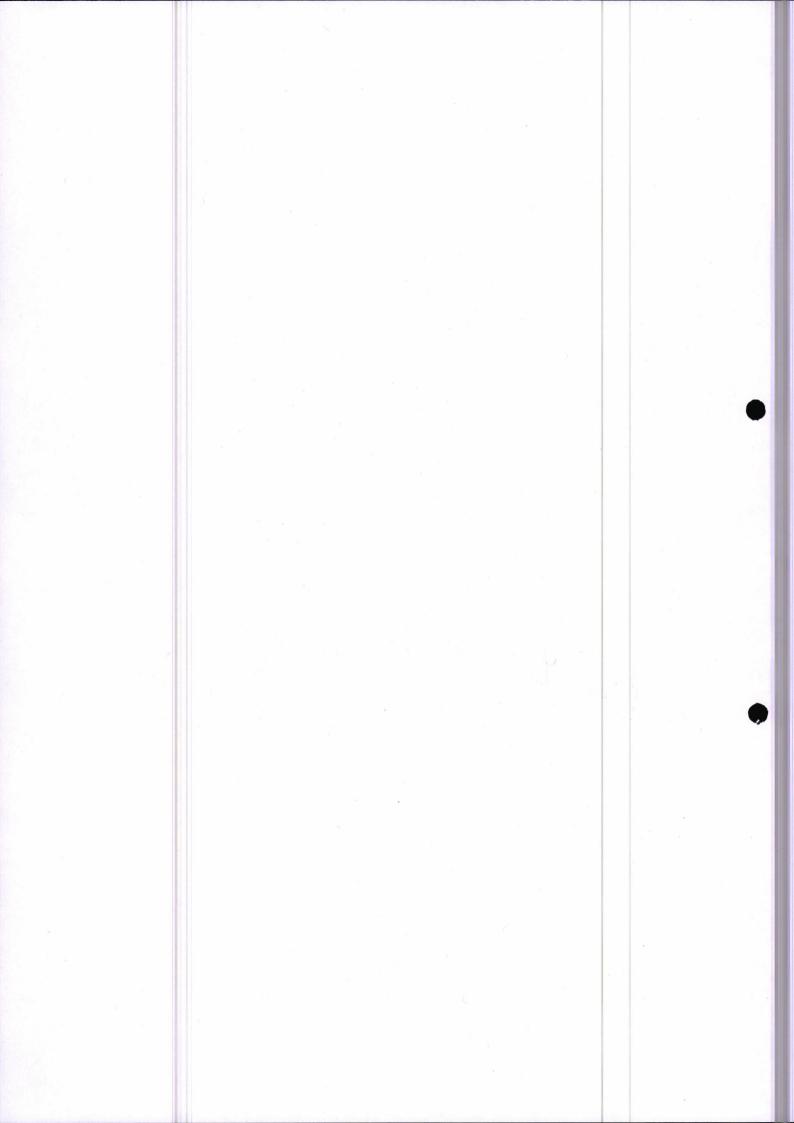
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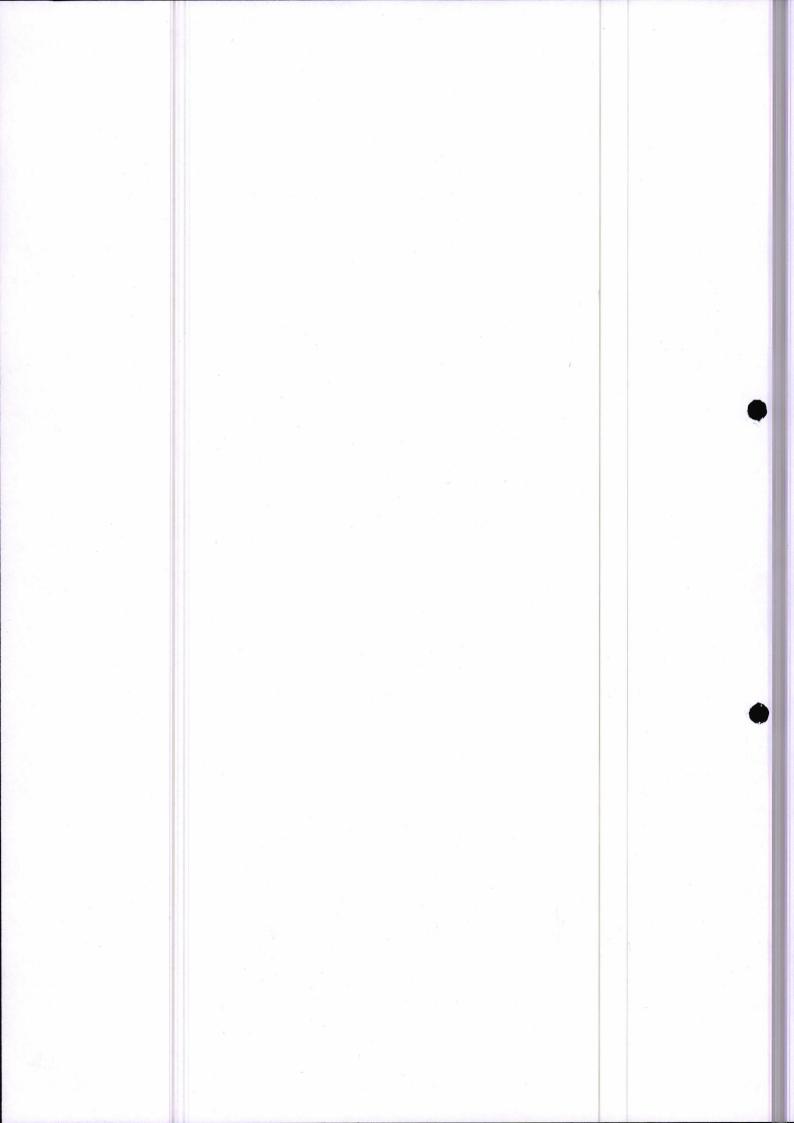
2. Course Name 3. Course Code	nent: Forensic S	science							
	Forensic Genetic	es and DNA Profiling	L	Т	P				
	17040605		4	0	0				
4. Type of Course (use	tick mark)	Core ()	DSE	✓)	SEC				
5. Pre-requisite	10+2 with	6. Frequency	Even	Odd	Either	Every			
(if any)	Science	(use tick marks)	(✔)	0	Sem()	Sem ()			
7. Total Number of Lectures, Tutorials, Practical									
Lectures = 52		Tutorials = 0	0	P	ractical =	00			
8. Course Description									
This course provides stu	dents the knowle	edge of Human Genetic	s and nonu	lation ge	enetics use	fulness			
of genetic markers in fo	orensic investiga	tion. Potential Benefits	of DNA	lata ban	king and f	forensic			
significance and the legal	l importance of D	NA profiling will also l	be explained	1.	0				
9. Course Objectives									
The objectives of this cou	urse are to:								
	Sector Sector Sector	agente of human i							
 Provide knowledge at Introduce the usefulne 	ess of genetic ma	rkers in forensic investi	S.	with th	internet	tion of			
a DNA profile.	cos or genetic ma	ikers in torensie investig	Sation along	s with the	emerpreta	1011 01			
3. Understand the need,	progress, forensie	c significance and the le	gal importa	nce of D	NA profili	ing in			
various scenarios in In	ndia and abroad.								
4. Demonstrate use of bi		Forensic Science.	×						
10. Course Outcomes (C	COs)		Statistics.						
Upon successful complet	tion of this course	e, the students will be ab	le to unders	stand:					
1. Disciplinary knowled	ge of human gene	etics.							
 Analytical skill enhan 	0								
		X A							
3. Research Ethics in Int		NA profile.							
11. Unit wise detailed co				~					
	Number of lectu		ne unit: Hu	A CARLES AND A CARLES		Contraction of			
Genetics: Human genetic	variations, Men	delian Inheritance, Har	dy Weinbe	rg Equili	ibrium, Mu	utation-			
their types and causes.									
Polymorphism and hete profiling, Touch DNA an	rozygosity. Mea	usures of genetic variation with the second se	itions. Mat	erial pre	eterred to	: DNA			
Unit - 2	Number of lectu	$res = 13 \qquad Title of the function of the func$	ne unit: DN	A Profi	ling I				
DNA Profiling: Introdu		of DNA Typing, mole							
		and Inorganic extraction	n. Comparis	on of Ex	traction m	- 41 1-			
polymorphism, DNA Ext	DET D								
polymorphism, DNA Ext Forensic DNA typing sy	stem – RFLP, A	mp-RFLP. STR. Mini	STR. Y-ST	rr, XST	R. Mitoch				
polymorphism, DNA Ext Forensic DNA typing sy DNA. STR loci of Forens	sic significance. S	Amp-RFLP. STR. Mini STR typing: Manual and	STR. Y-ST Capillary I	FR, XST Electroph	R. Mitoch oresis.				
polymorphism, DNA Ext Forensic DNA typing sy DNA. STR loci of Forens	vstem – RFLP, A sic significance. S Number of lectu	Amp-RFLP. STR. Mini STR typing: Manual and	STR. Y-ST	FR, XST Electroph	R. Mitoch oresis.				
polymorphism, DNA Ext Forensic DNA typing sy DNA. STR loci of Forens Unit – 3 PCR amplification: PCR	sic significance. S Number of lectu process, compor	Amp-RFLP. STR. MiniSTR typing: Manual andres = 13Title of thenents, controls, advantage	STR. Y-ST Capillary I ne unit: DN ges and disa	FR, XST Electroph A Profil advantag	R. Mitoch horesis. ling II es, types o	ondrial			
polymorphism, DNA Ext Forensic DNA typing sy DNA. STR loci of Forens Unit – 3 PCR amplification: PCR PCR inhibitors, optimiz	sic significance. S Number of lectu process, compor ation and soluti	Amp-RFLP. STR. MiniSTR typing: Manual andres = 13Title of thenents, controls, advantageon to PCR inhibition.	STR. Y-ST Capillary I ne unit: DN ges and disa Stochastic	TR, XST Electroph A Profil advantag effect.	R. Mitoch noresis. ling II es, types o DNA sep	ondrial			
polymorphism, DNA Ext Forensic DNA typing sy DNA. STR loci of Forens Unit – 3 PCR amplification: PCR PCR inhibitors, optimiz methods: Slab gel and	sic significance. S Number of lectu process, compor ation and soluti Capillary Electro	Amp-RFLP. STR. MiniSTR typing: Manual andares = 13Title of thenents, controls, advantageon to PCR inhibition.ophoresis. DNA detect	STR. Y-ST Capillary I ne unit: DN ges and disa Stochastic ion method	TR, XST Electroph A Profil advantag effect. ls: Fluor	R. Mitoch noresis. ling II es, types o DNA sep rescent Dy	ondrial of PCR, paration res and			
polymorphism, DNA Ext Forensic DNA typing sy DNA. STR loci of Forens Unit – 3 PCR amplification: PCR PCR inhibitors, optimiz methods: Slab gel and Silver–staining. CODIS,	sic significance. S Number of lectu process, compor ation and soluti Capillary Electro Statistical evalua	Amp-RFLP. STR. MiniSTR typing: Manual andres = 13Title of thenents, controls, advantageon to PCR inhibition.ophoresis. DNA detecttition of DNA typing res	STR. Y-ST Capillary I ne unit: DN ges and disa Stochastic ion method sults and pro-	TR, XST Electroph A Profil advantag effect. ls: Fluor eparation	R. Mitoch noresis. ling II es, types o DNA sep rescent Dy n of reports	ondrial of PCR, varation ves and s. RNA			
polymorphism, DNA Ext Forensic DNA typing sy DNA. STR loci of Forens Unit – 3 PCR amplification: PCR PCR inhibitors, optimiz methods: Slab gel and	sic significance. S Number of lectu process, compor ation and soluti Capillary Electro Statistical evalua	Amp-RFLP. STR. Mini STR typing: Manual and res = 13Title of the Title of the nents, controls, advantage on to PCR inhibition. ophoresis. DNA detect tion of DNA typing resendence Project: Int Ophoresis. I	STR. Y-ST Capillary I ne unit: DN ges and disa Stochastic ion method sults and pro- roduction,	TR, XST Electroph A Profil advantag effect. ls: Fluor eparation	R. Mitoch noresis. ling II es, types o DNA sep rescent Dy n of reports	ondrial of PCR, varation ves and s. RNA			
polymorphism, DNA Ext Forensic DNA typing sy DNA. STR loci of Forens Unit – 3 PCR amplification: PCR PCR inhibitors, optimiz methods: Slab gel and Silver–staining. CODIS,	sic significance. S Number of lectu process, compor ation and soluti Capillary Electro Statistical evalua	Amp-RFLP. STR. Mini STR typing: Manual and res = 13Title of the Title of the nents, controls, advantage on to PCR inhibition. ophoresis. DNA detect tion of DNA typing resendence Project: Int Ophoresis. I	STR. Y-ST Capillary I ne unit: DN ges and disa Stochastic ion method sults and pro-	TR, XST Electroph A Profil advantag effect. ls: Fluor eparation	R. Mitoch noresis. ling II es, types o DNA sep rescent Dy n of reports	ondrial of PCR, varation ves and s. RNA			



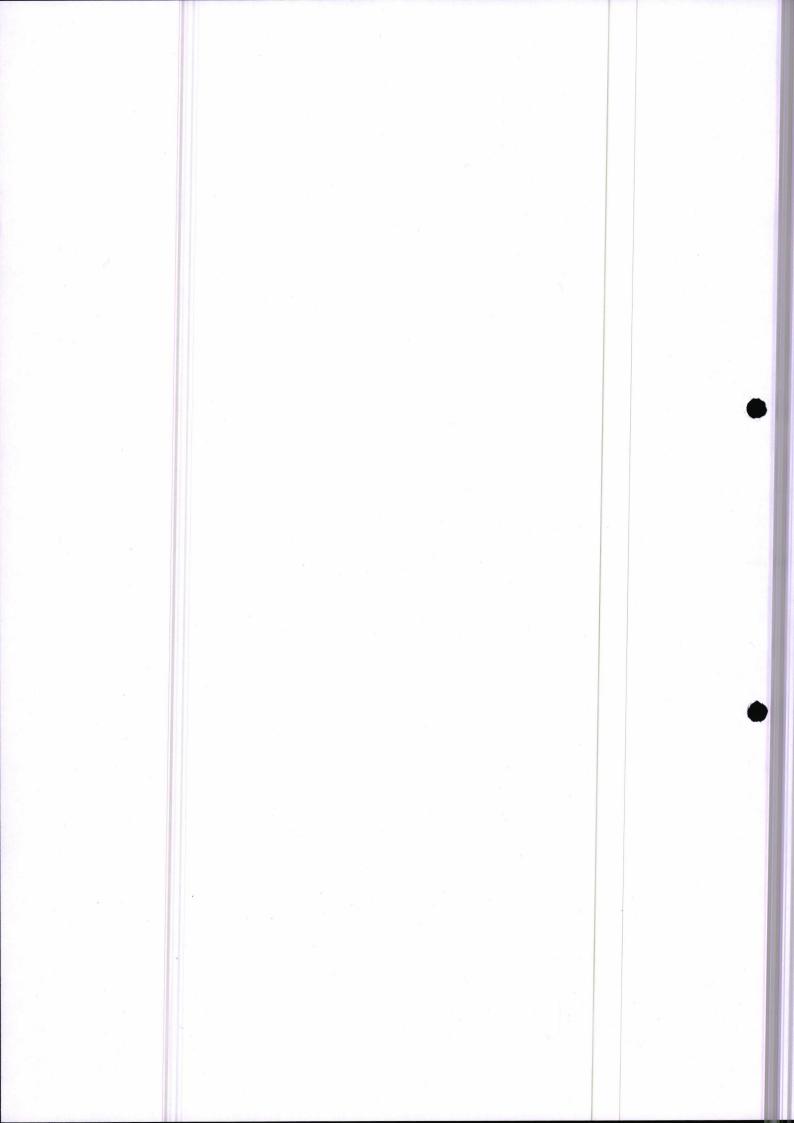
•		a second and a second second second			
· · · · · · · · · · · · · · · · · · ·			DNA profili	ng and Bioinform	natics
orensic Significan	ce of DNA profiling: A	Applications	in disputed	paternity cases,	Importance of
	ases, Rape case, and ot				
	nigration, veterinary, w		nitations of	DNA profiling	. Introduction
ioinformatics and	ts application in forensi	CS.			
2 Brief Deserinti	on of self-learning / E-l	loorning oor	nnonont		
			процент		
	tube.com/watch?v=ffn3				
	tube.com/watch?v=0M8				
	tube.com/watch?v=R1J tube.com/watch?v=z50				
	tube.com/watch?v=kbU	and the second se	2		
. <u>Intep5.// www.jou</u>					
3. Books Recomm					
	n Introduction to Forens		•		2002.
	Introduction to Forensi				
	ics of DNA and Evident DNA Profiling. Harwood				
	DNA Profiling and DNA				
	A Fingerprinting. W H	· · ·	•	verlage, 1999	
	DNA Tests in Criminal			ernity Disputes.	Asia Law
Agency, 2006.		U			
	sic DNA Typing. Elsev				
Mark A. Farley.	James J. Harrington. Fo	rensic DNA	Technology.	CRC Press, 199	1.
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	h d	12an	Doha	11 -	· ·



. Course Name	Forensic Genet	ics and DNA Profiling	L	Т	1	P		
	Lab	Be and Let at the many		-				
. Course Code	17040606		0	0	4	4		
. Type of Course (us	e tick mark)	Core ()	DSE	(√)	SEC			
. Pre-requisite	10+2 with	6. Frequency	Even	Every				
(if any)	Science	(use tick marks)	(✓)	0	Sem()	Sem (
Total Number of L	ectures, Tutorial							
ectures = 00 Course Description		Tutorials = 0	0	P	ractical =	52		
gnificance, Extracti	on of DNA from	ical knowledge of DNA Blood and other body e, PCR cleanup of DNA	fluids, P	CR ampl	ification of	of DNA		
Course Objectives								
he objectives of this a	course are to:							
. Extract DNA from	blood.							
. Extract DNA from		uids.						
. Perform Electropho								
. Perform PCR for D	NA samples and Q	Quantify DNA						
0. Course Outcomes	(COs)							
pon successful comp	letion of this cours	se, the students will be ab	le to:					
. To develop analytic	al skills to extract	DNA from blood.						
2. To develop analytic								
		traction DNA from other						
		orm PCR for DNA sampl	es and qua	untify DN	IA.			
1. List of Experimen								
. To Prepare chemica								
. To study Extraction								
. To study Extraction		used in Electrophoresis						
5. To prepare gel plate								
. To conduct Electrop								
7. To study the PCR a								
. To study the PCR c								
. To study the Quanti								
		A profiling in solving pate	ernity testi	ng.				
3. Books Recommen				0				
1. DFSS, CFSL at	nd SFSL Manuals							
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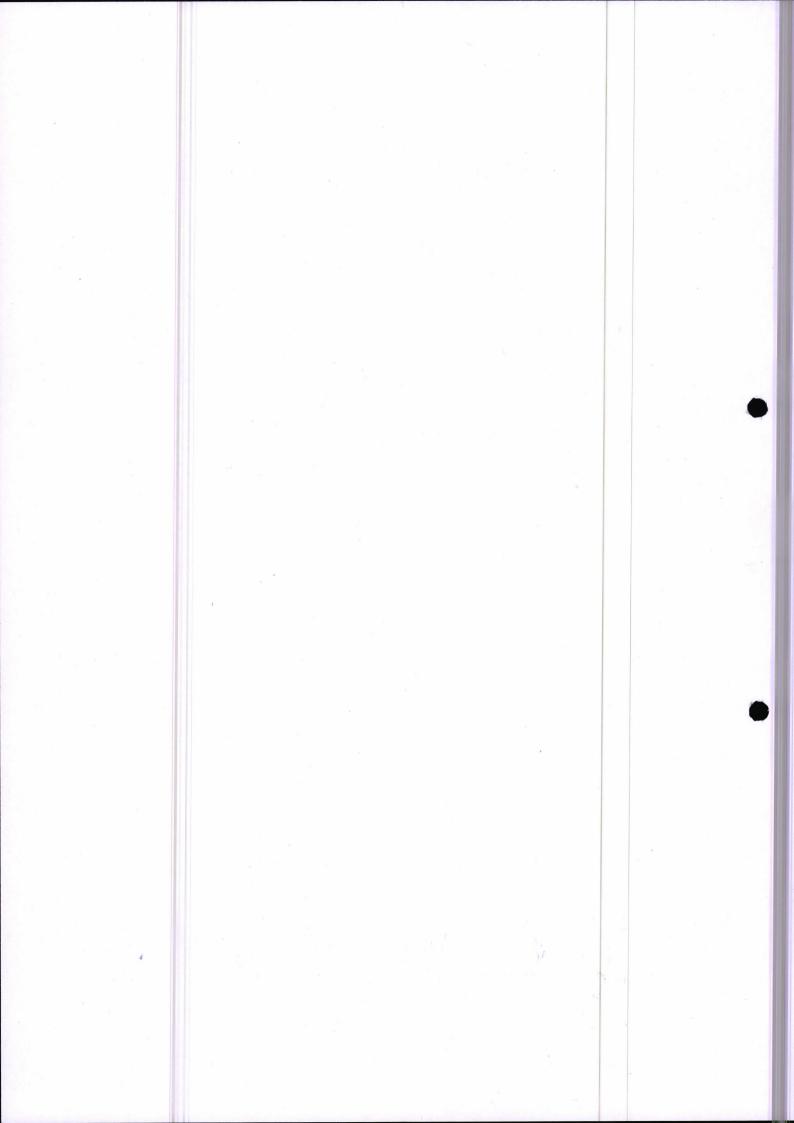


1. Name of the Depar	tment: Forensic Science	ce						
2. Course Name	Bioinformatics			L	Т	P		
3. Course Code	17040607			4	0	0		
4. Type of Course (us	e tick mark)	Core ()	DSE (✔)	AEC ()	SEC ()	OE ()		
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even (✓)	Odd()	Either Sem ()	Every Sem ()		
7. Total Number of Lectures, Tutorials, Practical								
Lectures = 52		Tutorials = ()0	Practical	= 00			
8. Course Description	:							
 used for it. 9. Course Objectives 1. To understand the objectives 2. To understand about 3. To get acquainted works FASTA. 4. To understand about 10. Course Outcomes Upon successful compliant of the second se	vith various tools and al at various tools and algo (COs): letion of this course, the blain the concepts of bio nking and scientific reas abases associated with p erpret the results obtaine content	es and its resea gorithms used prithms used for student will b informatics. soning skills for rotein modelli ed for DNA pro	rch areas. for seque or gene id e able to: or obtaining. ofiling of	ence alignme entification ng sequence samples usi	ent such as l alignment ng bioinforr	BLAST and		
Unit-1	Number of lectures	Title of the u	nit: Intr	oduction a	nd Databas	ses		
Introduction, Branches of Bioinformatics, Aim, Scope and Research areas of Bioinformatics. Biological Database and its Types, Introduction to data types and Source. Population and sample, Classification and Presentation of Data. Quality of data, private and public data sources. General Introduction of Biological Databases; Nucleic acid databases (NCBI, DDBJ, and EMBL). Protein databases (Primary, Composite, and Secondary). Specialized Genome databases: (SGD, TIGR, and ACeDB). Structure databases (CATH, SCOP, and PDBsum).								
Unit – 2	Number of lectures	Title of the u	nit: Pro	tein Modell	ing			
B.Z	of A	Sell	1.	John 1	f.	fato		



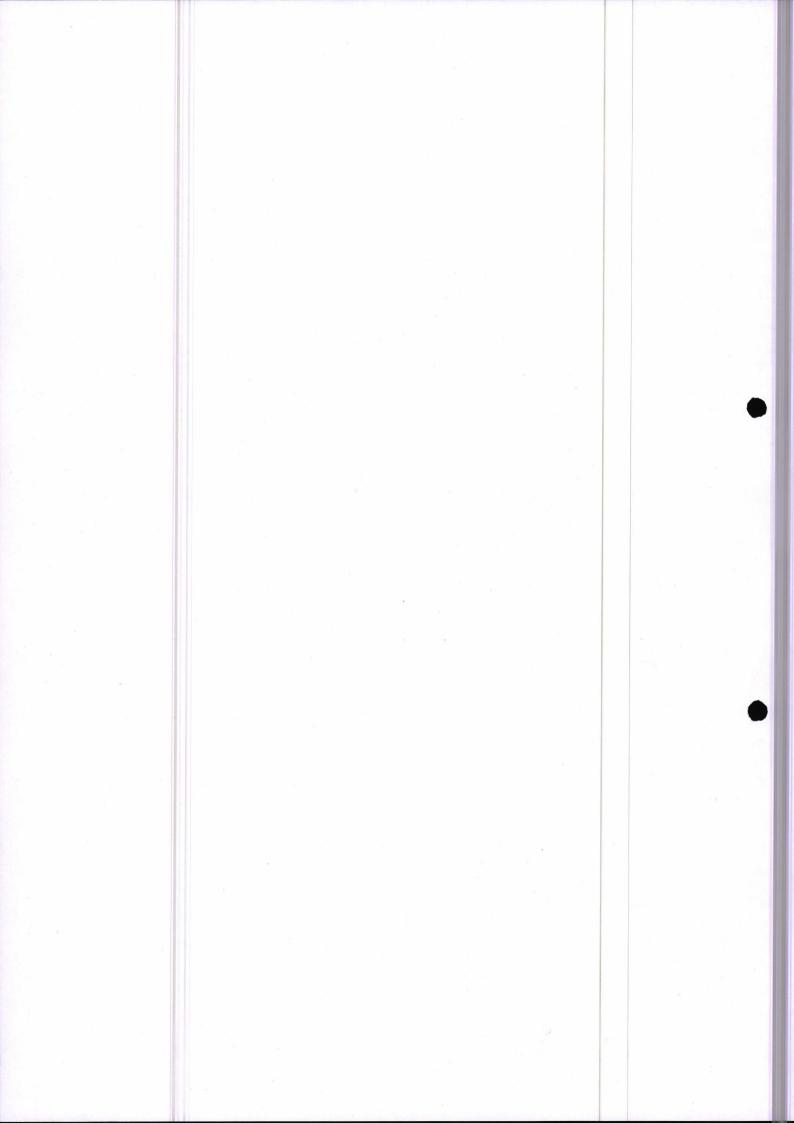
Protein secondary structure classification databases: HSSP, FSSP, CATH, SCOP,Protein secondary structure						
prediction methods: GOR, Chou-Fasman, PHD, PSI- PRED, J-Pred. Protein Tertiary structure prediction						
methods: Homology Modelling, Fold Recognition, Ab- intio Method, Protein folding, Molecular Dynamics of Protein, Molecular Docking of Protein, Small molecule and Nucleotide.						
Unit – 5	lumber of lectures	Title of the unit: Sequence Alignments and its tools				
Sequence Alignments		Introduction to Sequences, alignments and Dynamic				
		alignment (algorithm and example), Pairwise alignment				
	(BLAST and FASTA Algorithm) and multiple sequence alignment (Clustal W algorithm). Methods for					
	presenting large quantities of biological data: sequence viewers (Artemis, SeqVISTA), 3D structure					
viewers (Rasmol, SPDBv	, Chime, Cn3D, PyM	Iol), Anatomical visualization.				
Unit -4 Nu	umber of lectures	Title of the unit: Gene Identification and its tools				
Care identification 1						
		and BLAST algorithm. Bioinformatics analysis of DNA				
		applications- Clustal family, BioEdit, MEGA, Arlequin, Protein				
		Tools used in proteomics, In-silico simulation for molecular ity and statistics. Bayesian analysis. Likelihood ratio. Statistical				
evaluation of DNA profile						
12. Brief Description of	•					
1. <u>https://www.youtube.</u>						
 <u>https://www.youtube.</u> <u>https://www.youtube.</u> 						
4. https://www.youtube.d						
5. https://www.youtube.c						
6. <u>https://www.youtube.c</u>						
 https://www.youtube.c Books Recommended 		9PAwlo				
1. Bioinformatics: Seque	ence and Genome An	alysis by Mount D., Cold Spring Harbor				
Laboratory Press, Nev						
 Introduction to bioinformatics by Teresa K. Attwood, David J. Parry-Smith. Pearson Education. 1999 Old editions 						
3. Bioinformatics- a Practical Guide to the Analysis of Genes and Proteins by Baxevanis, A.D. and Francis						
Ouellellette, B.F., Wiley India Pvt Ltd. 2009.						
4. Setubal, J. and Meidanis, J. 1996 Introduction to Computational Molecular Biology. PWS Publishing Co.,						
Boston. 5 Lesk A.M. 2005. 2nd edition. Introduction to Bioinformatics. Oxford University Press						
 Lesk, A.M. 2005, 2nd edition, Introduction to Bioinformatics. Oxford University Press. Fogel, G.B. and Corne, D.W., Evolutionary Computation in Bioinformatics. 						
7. Mount, D.W., Bioinformatics: 2001, Sequence and Genome Analysis. CSHL Press.						
8. Durbin R., Eddy S., Krogh A. and Mithchison G. 2007 Biological Sequence Analysis, Cambridge						
University Press.						
N		Start Apha La"				
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Nome of the Down	rtment: Forensic Scien	20				1
. Name of the Depa . Course Name	Bioinformatics Lab	ce		L	Т	D
						P
. Course Code	17040608			0	0	4
4. Type of Course (use tick mark)		Core () DSE		AEC ()	SEC ()	OE ()
			(🗸)			
. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even	Odd()	Either Sem ()	Every Sem (
. Total Number of l	Lectures, Tutorials, Pra	ctical				
ectures = 00		Tutorials =	00	Practical	= 52	
Course Descriptio	n		<u>.</u>			
ignment using vario Course Objectives To understand the To analyse and int To get acquainted		d hands on ex es through hand re and alignme	ds on sess	to determin ions. tools and da	e the prote	in sequence ar
 Lignment using vario Course Objectives To understand the To analyse and int To get acquainted FASTA. To understand and 	will be also be provide us databases. concept of bioinformatic erpret the protein structu l with various tools and l perform molecular dock	d hands on ex cs through hand re and alignme algorithms us	ds on sess ent using t ed for sec	to determin ions. tools <u>and da</u> quence align	e the prote	in sequence ar
 lignment using vario Course Objectives To understand the To analyse and int To get acquainted FASTA. To understand and 	will be also be provided us databases. concept of bioinformatic erpret the protein structu l with various tools and l perform molecular dock s (COs)	d hands on ex es through hand re and alignme algorithms us king using vari	ds on sess ent using t ed for sec ous softwa	to determin ions. tools and da quence align are.	e the prote	in sequence ar
 Ignment using vario Course Objectives To understand the To analyse and integration To get acquainted FASTA. To understand and and Course Outcome Ipon successful comp Understand and pr Develop critical the Analyze and interp Summarize and 	will be also be provided us databases. concept of bioinformatic erpret the protein structu l with various tools and l perform molecular dock s (COs) pletion of this course, the actically perform the ana inking and scientific reas pret results obtained after interpret the results of	d hands on ex es through hand re and alignme algorithms us king using vari student will b alysis on differ soning skills for analysing pro	ds on sess ent using t ed for sec ous softwo e able to: ent databa or obtainin teins usin	to determin ions. tools and da quence align are. are. g sequence g different s	e the prote tabases. ment such alignment oftwares.	in sequence ar
 lignment using vario Course Objectives To understand the To analyse and int To get acquainted FASTA. To understand and Ourse Outcome Upon successful comp Understand and pr Develop critical the Analyze and interp 	will be also be provided us databases. concept of bioinformatic erpret the protein structu l with various tools and l perform molecular dock s (COs) pletion of this course, the actically perform the ana inking and scientific reas pret results obtained after interpret the results of	d hands on ex es through hand re and alignme algorithms us king using vari student will b alysis on differ soning skills for analysing pro	ds on sess ent using t ed for sec ous softwo e able to: ent databa or obtainin teins usin	to determin ions. tools and da quence align are. are. g sequence g different s	e the prote tabases. ment such alignment oftwares.	in sequence ar

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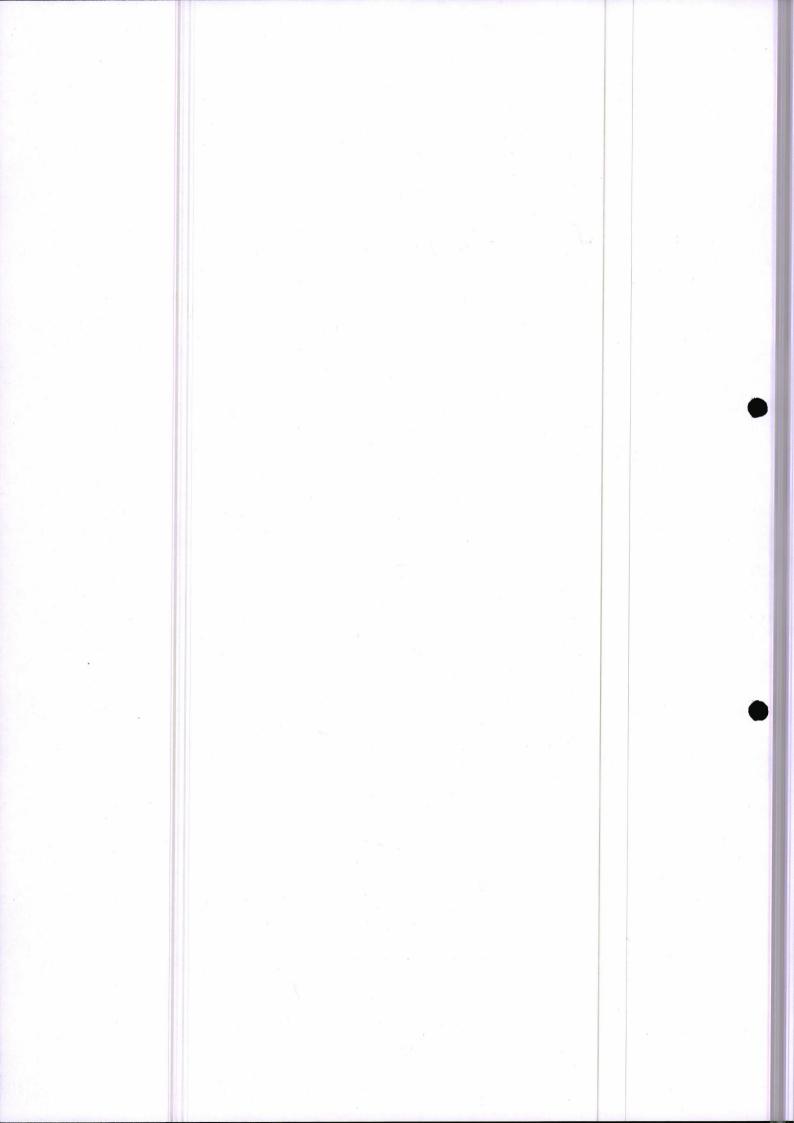
13. Books Recommended

- 1. Bioinformatics- a Practical Guide to the Analysis of Genes and Proteins by Baxevanis, A.D. and Francis Ouellellette, B.F., Wiley India Pvt Ltd. 2009.
- 2. Setubal, J. and Meidanis, J. 1996 Introduction to Computational Molecular Biology. PWS Publishing Co., Boston.

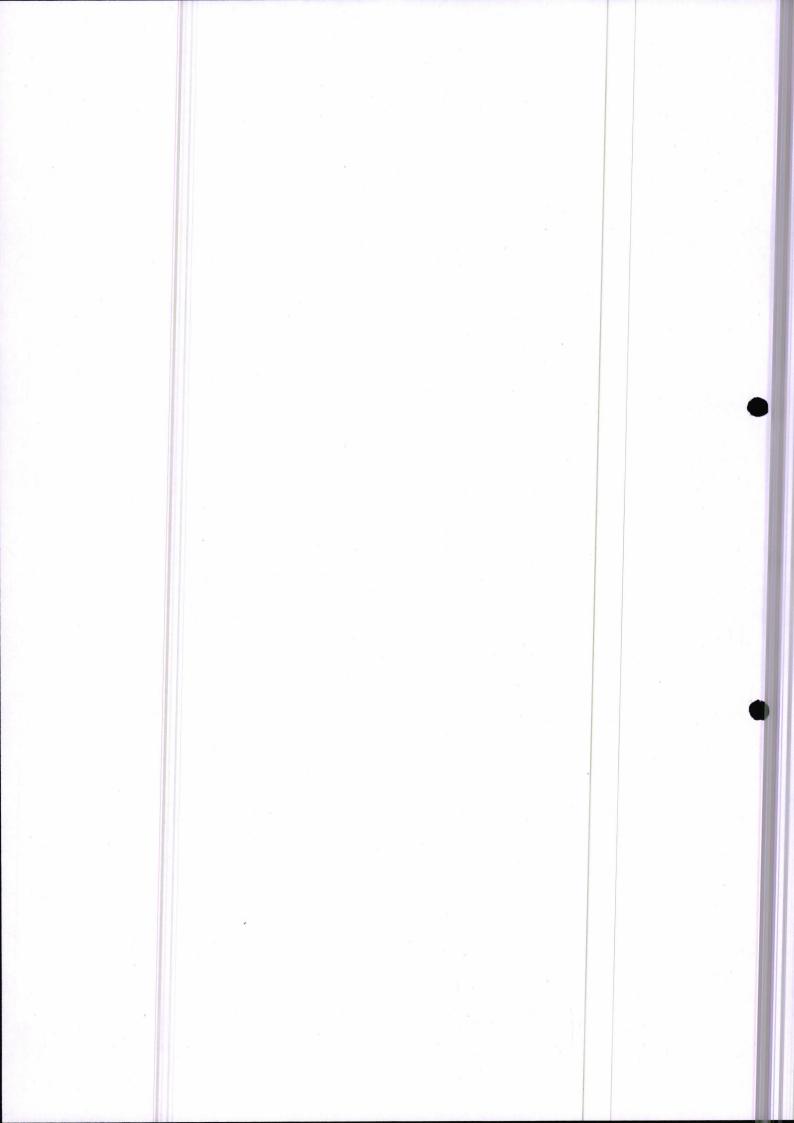
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1. Name of the Depar	tment: Forens	sic Science				
2. Course Name	Pharmacokinetics and Pharmacology			L	Τ	P
3. Course Code	17040609			4	0	0
4. Type of Course (us	e tick mark)	Core ()	DSE (🗸)	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even (✓)	Odd()	Either Sem ()	Every Sem ()
7. Total Number of L	7. Total Number of Lectures, Tutorials, Practical					
Lectures = 52 Tutorials = 00 Practical = 00						
8. Course Description	1:					
This course offers the development, mechani for the identification o 9. Course Objectives 1. To develop the fun	sm and toxicol f drug toxicity	ogical concepts. Ph and symptoms.	harmacologi	cal applica	tions in fore	ensic sciences
 concepts of forensi To develop the und persuasively. To understand the pervironment. To develop the und Forensic Science w 	lerstanding of the formattical applic lerstanding of the formattical applic lerstanding of the formatter the most curves and the most curves and the most curves and the most curves applied to the most curves and the most curves applied to the most curves applied t	ations of pharmacc	ology to wor Pharmacokin	k effective	ly in any m	ultidisciplinary
 Course Outcomes Development of fur real-time forensic i Development of the enhance critical thi Development of the describe theoretical Development of the Forensic Science for 	ndamental know ssues in legal a e understanding nking and obse e understanding , conceptual an e understanding	nd social context. g of the concepts of rvation skills. g of the practical ap nd experimental dat g of the application	Pharmacok pplications o a. s of Pharma	inetics and f pharmacc cokinetics :	Pharmacoc ology to ana and Pharma	lynamics to lyse and cokinetics in
11. Unit wise detailed content						
Unit-1	Number of lectures = 13	Title of the unit:	Introducti	on to Phar	macology	
General Principles of Schedules), Nature and transportation of Drugs	d Sources of d	y, Subdivisions o rugs, Dosage form	f Pharmacc s of Drugs,	ology, Law Routes of	/s governir Drug Adm	ng drugs (Drug inistration, Bio-
BC	r	ASISC	Ash	a y		Jak

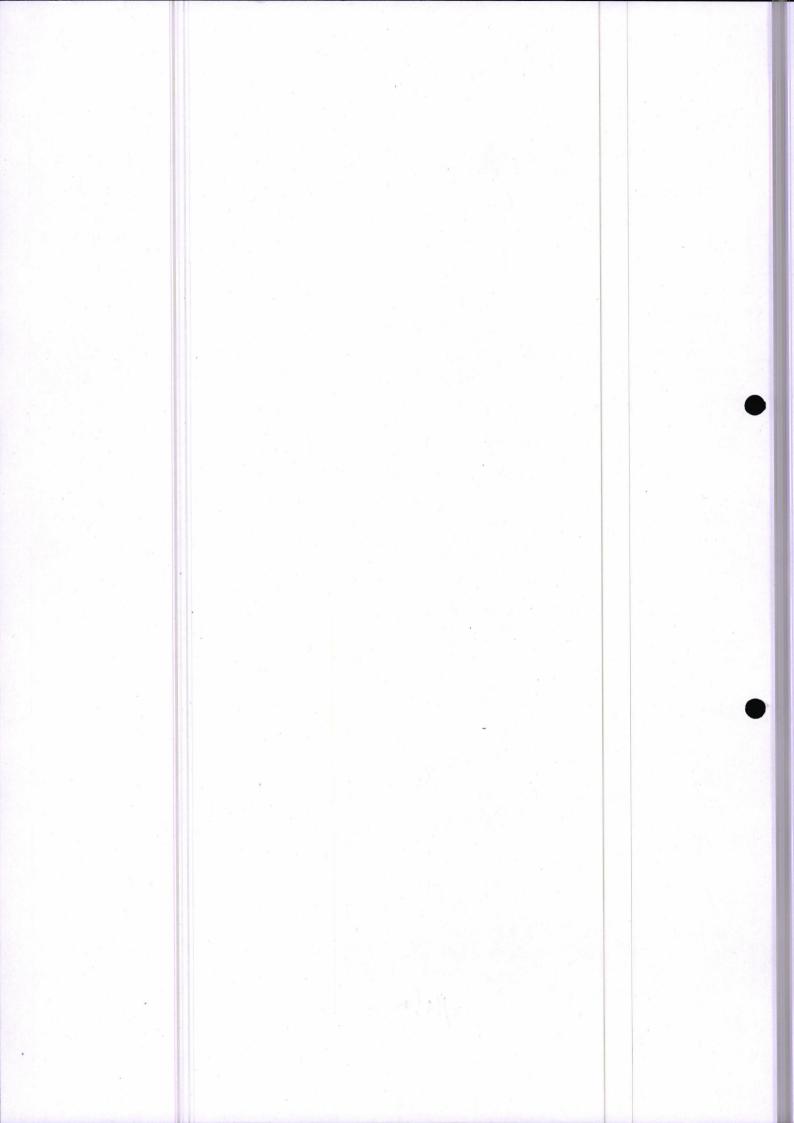


Un	nit — 2	Number of	Title of the unit: Pharmacokinetics
		lectures = 13	
Ph bai	armaceutical and priers to drug distril	pharmacological pution, Chemica	action, Drug absorption, Bioavailability of drugs, Bioequivalence, I factors influencing absorption and bioavailability, Physiological al pathways of drug biotransformation, Drug metabolising enzymes, tiation, Synergism, Antagonism, Drug Interaction.
Un	ıit − 3	Number of lectures = 13	Title of the unit: Pharmacodynamics
Sig	gnal Transduction	Mechanism, A	lynamics, Site and Mechanism of Drug Action, Receptors Types and dverse Drug Reactions, Measurement of Drug Effects, Types of Placebo Effects, Therapeutic index.
	iit -4		Title of the unit: Discovery and Development of New Drugs
Sei Phi	rendipity) Drug Dev armacokinetic Stud	velopment (Precies), Clinical Ev	Molecular manipulation, molecular designing, metabolites of drugs clinical Evaluation, Animal Screening Programme, Toxicity Studies valuation (Clinical Pharmacology, Clinical Trials), Phases of Clinica discovery, drug development and clinical trials.
12.	Brief Description	of self-learning	g / E-learning component
1. 2. 3. 4. 5.	of-pharmacodynan https://www.youtu	anuals.com/en- nics be.com/watch?v be.com/watch?v	in/professional/clinicalpharmacology/pharmacodynamics/overview- v=NKV5iaUVBUI v=-9YWHXmHBEI
13.	Books Recommen	ided	
1. 2. 3.	Publishing Compare Gilbaldi M, Perrier	ny, 1970. ⁻ D. Pharmacoki G, Aronson JI	<i>pharmaceutical sciences</i> . 18 th ed. Easton, Pennsylvania: Mack inetics, 2 nd Ed. New York: Dekker, 1982. K. Oxford textbook of clinical pharmacology and drug therapy.
4. 5. 5.	Katzung BG. <i>Basic</i> Skoutakis VA, <i>Cl.</i> Febiger, 1982.	e and clinical ph inical toxicolog	harmacology, 7 th ed London: Prentice Hall International, 1998. By of drugs; principles and practice, 1 st ed. Philadelphia: Lea and macy, 2 nd ed. Philadelphia: JB Lippincott Company, 1970.
	Browns JD, ed, 17		Ass Asta V.

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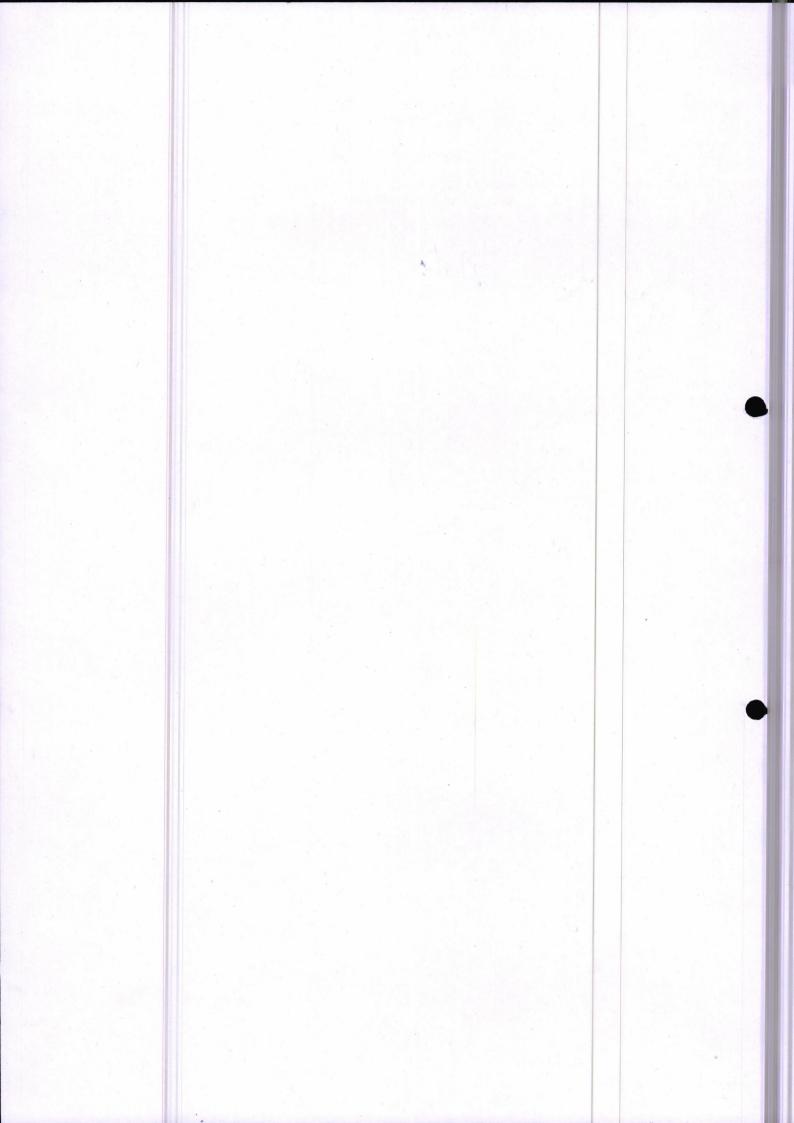
Course Name	Pharmacokineti	cs and Pharmacolo	gy Lab	L	Т	P
Course Code	17040610			0	. 0	4
Type of Course		Core ()	DSE (🗸)	AEC ()	SEC ()	OE ()
Pre-requisite		6. Frequency	Even(<	Odd ()	Either	Every
If any)		(Use tick marks)			Sem ()	Sem ()
. Total Number o	f Lectures, Tuto	rials, Practicals				
ectures = 00		Tutorials = 00		Practical	= 52	
. Course Descript	tion:	. 1				
 contraction of active characteristic chara	on. It will also ves: indamental and no he concepts of fo understanding of the practical appl e understanding ce with the most of nes (COs): ble to – f understanding o	ctical knowledge enable students t ecessary knowledg rensic toxicology. The concepts of Ph ications of pharma of the application current knowledge f the analysis of dif	e of pharma armacokinet cology to wo ns of Pharm and technolo	analysis us cology thro ics and Pha ork effectiv nacokinetic ogy. ory of drug	ing advance ough practica armacodynan rely in any m s and Pharm s in legal and	al exposure f nics clearly a ultidisciplina nacokinetics
and discovery for Development of drugs in drug to 1. Practicals	or achieving the t f understanding o xicity cases to an	f the drug administ arget without spoil f the qualitative an alyze and interpret	ing the socie d quantitativ experimenta	tal harmon e analysis o al and repor	y. of different ca rted data.	ategories of
. To perform the c	ualitative and qu	antitative analysis	of the given	sample of a	analgesic usin	ng TLC and
GC-MS.						
. To determine the	e adulterants pres	ent in the multivita	mins.	comple of	dulterated a	ormetics
. To perform the c	juantative and qu	antitative analysis iming toxicity due	to antibiotic	sample of a	adunciateu co	osmettes.
5. To prepare a cas			to untiolotio			
5. Study of action of	of antidepressants	s on mice.				
7. To separate prim 3. To prepare a cas 9. Introduction of a	nary components e study on placeb nimal used for ex	of the drugs using to effect of a antide experimental pharma f drugs in experime	pressants. acology.		bhy.	
2. Books recomn						
Brenner, G. M.	Stevens, C. W.,	& Brenner, G. M. pharmacology for	(2018). Phar prescribers.	<i>macology</i> Oradell, N	J: Medical E	Economics Co
		11		~ ' '		



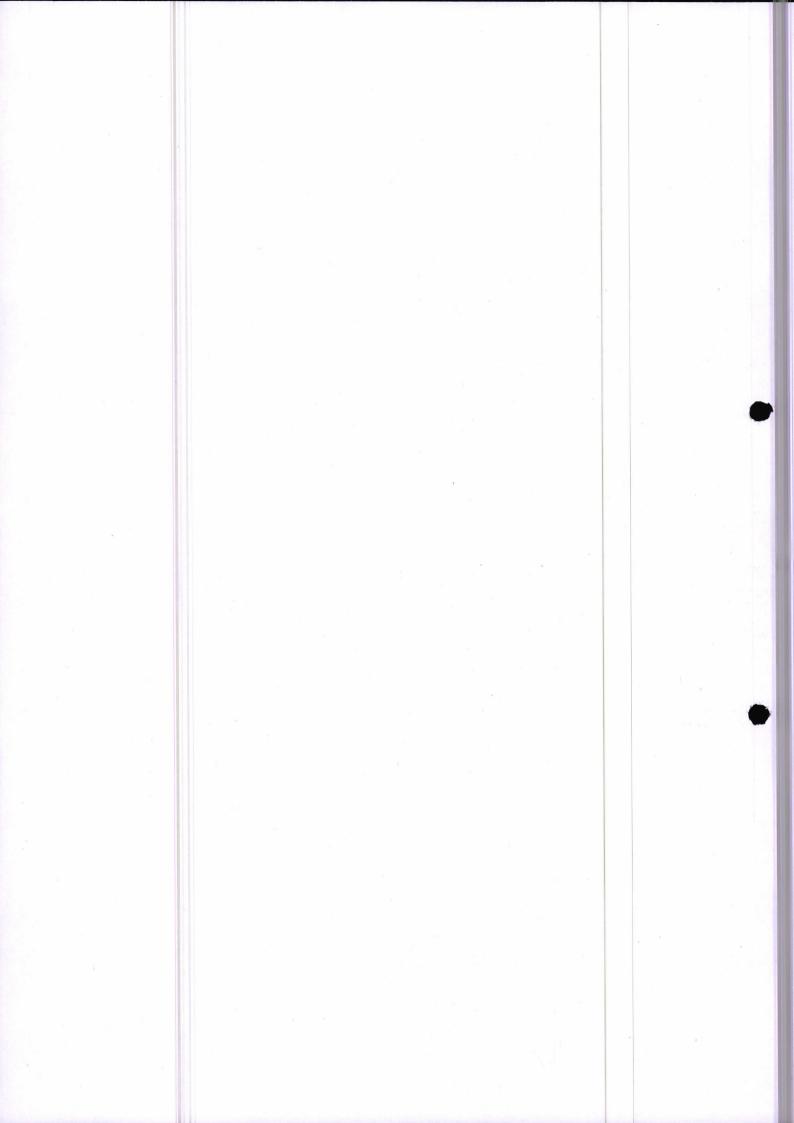
3. Kitchen, I. (1984). *Textbook of in vitro practical pharmacology*. Oxford: Blackwell Scientific Publications.

 Mahajan, Rajiv, Practical Manual of Pharmacology for Medical Students, International Journal of Applied and Basic Medical Research: Oct–Dec 2021 - Volume 11 - Issue 4 - p 280-281
 Salmon, M. (2014). Practical pharmacology for the pharmaceutical sciences.

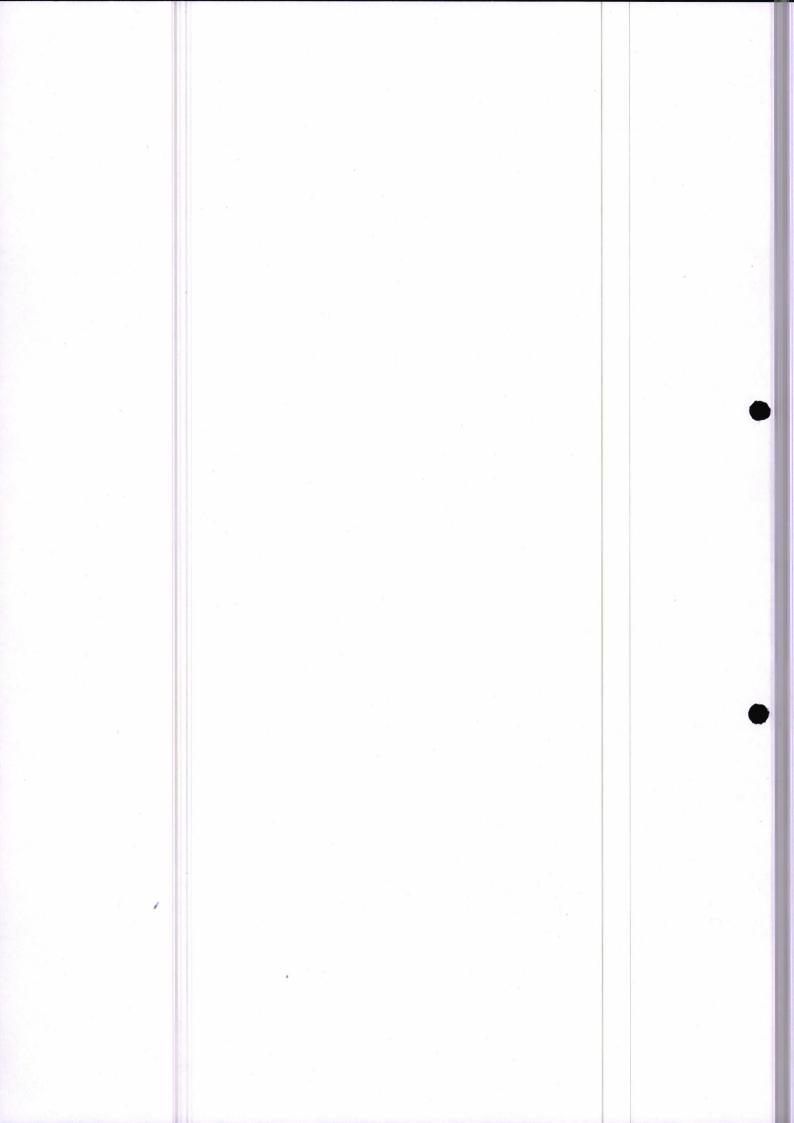
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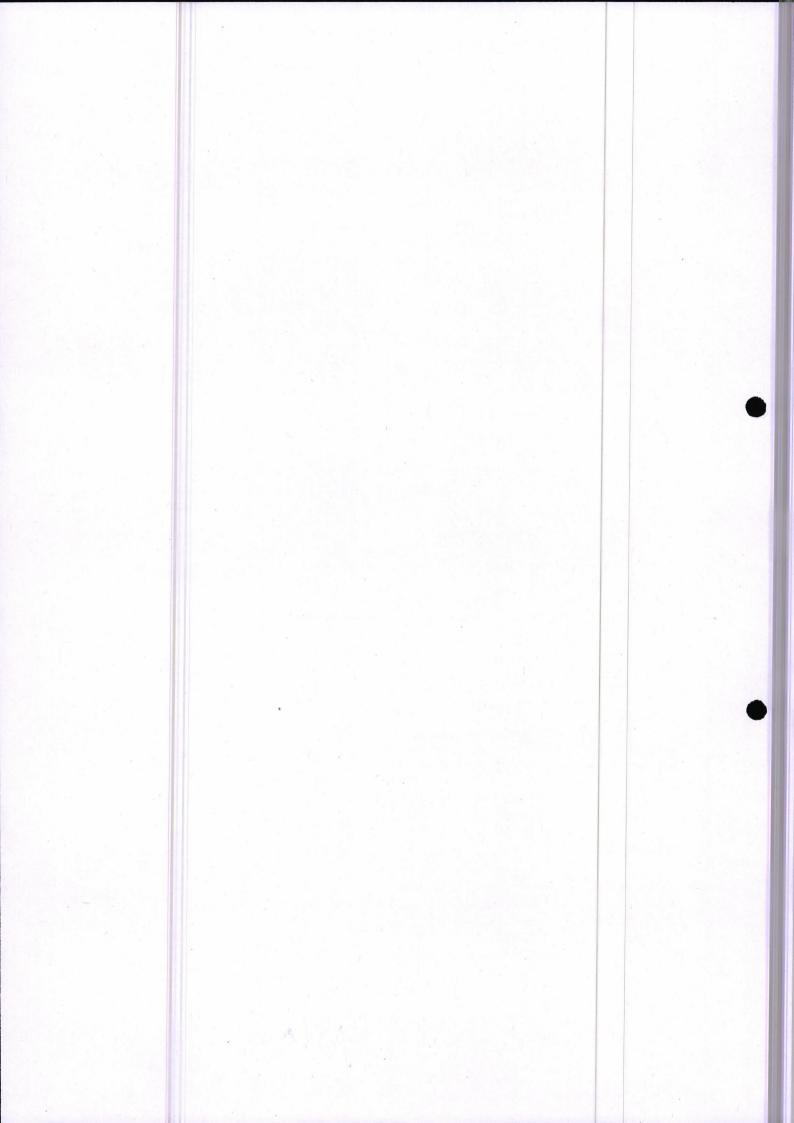
1. Name of the Depa	artment: Forensic Scien	ce				
2. Course Name	Instrumentation in Che	emical Sciences		L	Т	P
3. Course Code	17040611			4	0	0
4. Type of Course (use tick mark)	Core ()	DSE (🗸)	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even (🖌)	Odd()	Either Sem 0	Every Sem ()
7. Total Number of	Lectures, Tutorials, Pra	actical		2		
Lectures = 52		Tutorials = 00		Practical	= 00	
8. Course Description	on					
9. Course Objective	echniques and Radiochem es nary knowledge about the				· · ·	
2. To analyse and into 3. To enhance analyti	erpret the results. ical skills. oblem solving attitude rela		C			
 Describe and use v Describe and apply scene of crime. Explain and use value 	ful completion of this couvarious chromatographic y various Molecular Spec arious Chromatographic and demerits of all the tech ed content	techniques for acaded troscopic technique and spectroscopy te	lemic, profe es for exami chniques	ssional and nation of va	arious evidence	found at the
Unit-1	Number of lectures : 13	Title of the unit:	Chromato	graphy		
Basics of chromatog	raphy – Definition, Class	ification of chroma	tography	(
	orking, Instrumentation		f Chromato	grams and	Forensic app	lication (Pape
Qualitative and quan	titative aspects of chroma	atographic methods	in Forensic			
Unit – 2	Number of lectures : 13	Title of the unit:	Column Cl	hromatogra	aphy Techniqu	es
	ple, working, Instrumenta y - Basic Principle, worki				application.	
Sruph.						1.0
	BEN	sporter	Ar	}	J	tal



-:4 2	Number of lectures	Title of the units Creatureseens	
nit — 3	Number of lectures : 13	Title of the unit: Spectroscopy	
	. 15		
<u> </u>		tion with matter, Types of Spectro	
		strumentation, single beam and d	louble beam instrument, Beer Lamb
v, Forensic appli		am and double beam sampling	techniques, interpretation of structu
ta, forensic appli	· 그는 그 그는 것 같은 것 같	and double beam, sampling	techniques, interpretation of structu
		roscopy – Basic principle of instr	rumentation, techniques of atomization
		noval, forensic applications.	
nit -4	Number of lectures : T	Fitle of the unit: Mass Spectrose	сору
	13		그는 그 집을 다 봐야? 정말했
sic principle. In	strumentation, working, Fra	gmentation of molecules. Isoton	es, Isobars, Molecular ion, Metastal
		iques, Detectors and Forensic app	
	on of self-learning / E-lear	• • • • • • •	
• Briel Descripti	on of sen-learning / E-lear	ning component	
		winiWadegaonkarSelf/222%20Ch	
		Ins_software/GC_LC_CE_MS_20	
	The second se	file/0019/135073/Chemistry-for-	QLD_9780190313395_sample-
chapter-13_sect		dee/Usedensterndig c0/20th c0/20A	1
		udes/Understanding%20the%20A	troduction%20to%20Spectroscopy.pdf
	n/chemistry/principle-of-uv		abduction /62010/62015peetroseopy.p
	utube.com/watch?v=cfYp1j		
			aphy-principles?ID=MWHAS7E8Z
. Books Recomm	nended		
Robinson, J.W;	Atomic Spectroscopy, 2nd	Ed. Revised & Expanded, Marce	l Dekkar, Inc, New York,
1996.			
		ctroscopy- A compact reference f	forPractitioners,
	, London, 1997.		
		f Optics, S. Chand & Company, N	
	Distributors, New Delhi, 1	A. Frank, A. Settle. J; Instrumental	i Methods of Analysis, 7th
		struments, Tata McGraw Hill Pul	h Co NewDelhi 2004
		psorption Fluorescence & Flame I	
		riffith & Company, New SouthWa	
		oscopic Methods in Organic Che	
	Company, New Delhi, 1994		inisity, fundan, futa file oftaw
This Tuonsning	company, New Denn, 1994		
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L. Name of the Done						
1. Name of the Depa 2. Course Name	Instrumentation in Che		e I ah	I	Т	D
3. Course Name	17040612	inical science	S Lab		T 0	P 4
. course coue	17040012			0	0	4
4. Type of Course (u	se tick mark)	Core ()	DSE	AEC ()	SEC ()	OE ()
		X	(1)			
5. Pre-requisite	10+2 with Science	6.	Even	Odd()	Either	Every Sem
(if any)	stream.	Frequency	(1)		Sem ()	
		(use tick				
		marks)		de la comi		
7. Total Number of I	Lectures, Tutorials, Pra			-		
Lectures $= 00$,,,,,	Tutorials = (00	Practical	= 52	
Course Description						
	c Science provide student	to practical ave	ogura of	anastroasan	in always of	
adjochemical Techn	iques along with their for	is practical exp	iona	spectroscop	ic, chromat	ographic and
Autochennear Teenn	iques along with their 10	rensic applicat	ions.			
Course Objectives						
	al exposure about the variou	us instrumental	technique	2		
	interpret the results of toxic			.		
	lytical skills through advan			ies		
	problem solving attitude re					
. Course Outcomes					-	
	pletion of this course, the	students will 1	be able to	:		
1. Apply practice	al aspects of chromato	graphic techni	iques for	academic	profession	al and resear
purpose.	Perio di cincinato,	S-spino teenin		acadonne,	Profession	and researc
	lar Spectroscopic techni	mes for avon	ination of	Everieur	dance for	d at the
2. Othise Molecu	nal specific techni	ques for exam	mation of	various evi	dence toun	a at the scene
onima a						
crime.						
crime. 3. Gain analytical	l skills for examination o	of various chen	nical and	toxicologica	al evidence	
crime. 3. Gain analytica 4. Illustrate merit		of various chen	nical and	toxicologica	al evidence	
crime. 3. Gain analytical 4. Illustrate merit analysis.	l skills for examination o	of various chen	nical and	toxicologica	al evidence	
crime. 3. Gain analytica 4. Illustrate merit analysis. 1. Practicals	l skills for examination o ts and demerits of all th	of various chen ne techniques	nical and	toxicologica	al evidence	
crime. 3. Gain analytical 4. Illustrate merit analysis. 1. Practicals 1. To analyse and in	l skills for examination o ts and demerits of all th terpret given FTIR Spec	of various chen ne techniques trum.	nical and and choc	toxicologica ose the mos	al evidence	
crime. 3. Gain analytical 4. Illustrate merit analysis. 1. Practicals 1. To analyse and in 2. To identify differ	l skills for examination o ts and demerits of all th nterpret given FTIR Spec ent functional group base	of various chen he techniques trum. ed on given sp	nical and and choc	toxicologica ose the mos	al evidence	
crime. 3. Gain analytical 4. Illustrate merit analysis. 1. Practicals 1. To analyse and in 2. To identify differ 3. To perform the T	l skills for examination o ts and demerits of all th nterpret given FTIR Spec rent functional group base LC of cosmetic samples.	of various chen he techniques trum. ed on given sp	nical and and choc	toxicologica ose the mos	al evidence	
crime. 3. Gain analytical 4. Illustrate merit analysis. 1. Practicals 1. To analyse and in 2. To identify differ 3. To perform the T 4. To perform TLC	l skills for examination o ts and demerits of all th hterpret given FTIR Spec ent functional group base LC of cosmetic samples. of Ink samples.	of various chen ne techniques trum. ed on given sp	nical and and choc	toxicologica ose the mos	al evidence t appropria	
crime. 3. Gain analytical 4. Illustrate merit analysis. 1. Practicals . To analyse and in 2. To identify differ 3. To perform the T 4. To perform TLC	l skills for examination o ts and demerits of all th hterpret given FTIR Spec ent functional group base LC of cosmetic samples. of Ink samples.	of various chen ne techniques trum. ed on given sp	nical and and choc	toxicologica ose the mos	al evidence t appropria	
crime. 3. Gain analytical 4. Illustrate merit analysis. 1. Practicals 5. To analyse and in 5. To identify differ 6. To perform the T 6. To perform TLC 6. Chromatographic	l skills for examination o ts and demerits of all th nterpret given FTIR Spec rent functional group base LC of cosmetic samples.	of various chen ne techniques trum. ed on given sp redients of plan	nical and and choc	toxicologica ose the mos	al evidence t appropria	
crime. 3. Gain analytical 4. Illustrate merit analysis. 1. Practicals . To analyse and in . To identify differ . To perform the T . To perform TLC . Chromatographic . To study the mass	l skills for examination o ts and demerits of all th interpret given FTIR Spec ent functional group base LC of cosmetic samples. of Ink samples.	of various chen he techniques trum. ed on given sp redients of plan mpound.	nical and and choc ectroscop	toxicologica ose the mos y data.	al evidence t appropria	
crime. 3. Gain analytical 4. Illustrate merit analysis. 1. Practicals . To analyse and in 2. To identify differ 3. To perform the T 4. To perform TLC 5. Chromatographic 5. To study the mass 5. To perform paper	l skills for examination o ts and demerits of all th atterpret given FTIR Spec rent functional group base LC of cosmetic samples. of Ink samples. separation of active ingr s spectrum of a given con chromatography of a for	of various chen he techniques trum. ed on given sp redients of plan mpound.	nical and and choc ectroscop	toxicologica ose the mos y data.	al evidence t appropria	
crime. 3. Gain analytical 4. Illustrate merit analysis. 1. Practicals . To analyse and in . To identify differ . To perform the T . To perform TLC . Chromatographic . To study the mass . To perform paper . To verify lambert	I skills for examination o ts and demerits of all th atterpret given FTIR Spec rent functional group base LC of cosmetic samples. of Ink samples. separation of active ingr s spectrum of a given con chromatography of a for the beer's law.	of various chen he techniques trum. ed on given sp redients of plan mpound. rensically relev	nical and and choc ectroscop nt extracts vant evide	toxicologica ose the mos y data.	al evidence t appropria	
crime. 3. Gain analytical 4. Illustrate merit analysis. 1. Practicals 1. To analyse and in 2. To identify differ 3. To perform the T 4. To perform TLC 5. Chromatographic 5. To study the mass 5. To verify lambert 5. To verify lambert 5. To analyse the difference 5. To analyse the difference	I skills for examination o ts and demerits of all th interpret given FTIR Spec ent functional group base LC of cosmetic samples. of Ink samples. separation of active ingr s spectrum of a given con chromatography of a for beer's law. fferent metallic poisons u	of various chen ne techniques trum. ed on given sp redients of plan mpound. rensically relev using reinsch to	nical and and choc ectroscop nt extracts vant evide est.	toxicologica ose the mos y data. s (poisonous ence.	al evidence t appropria	
crime. 3. Gain analytical 4. Illustrate merit analysis. 1. Practicals 1. Or analyse and in 2. To analyse and in 3. To identify differ 4. To perform the T 5. To perform TLC 5. Chromatographic 5. To study the mass 5. To perform paper 5. To verify lambert 5. To analyse the differ 6. To perform colou	I skills for examination o ts and demerits of all th interpret given FTIR Spect ent functional group base LC of cosmetic samples. of Ink samples. e separation of active ingrest s spectrum of a given con chromatography of a for there's law. fferent metallic poisons un r tests for volatile poisons	of various chen ne techniques trum. ed on given sp redients of plan mpound. rensically relev using reinsch te as and non – vo	nical and and choc ectroscop nt extracts vant evide est. blatile poi	toxicologica ose the mos y data. s (poisonous ence.	al evidence t appropria	te technique f
crime. 3. Gain analytical 4. Illustrate merit analysis. 1. Practicals 1. To analyse and in 2. To analyse and in 3. To identify differ 4. To perform the T 5. To perform TLC 5. Chromatographic 5. To study the mass 6. To perform paper 7. To verify lambert 7. To analyse the diff 7. To perform colout 1. Examination of d	I skills for examination o ts and demerits of all th interpret given FTIR Spec ent functional group base LC of cosmetic samples. of Ink samples. separation of active ingr s spectrum of a given con chromatography of a for beer's law. fferent metallic poisons u it tests for volatile poison ocuments under stereo z	of various chen ne techniques trum. ed on given sp redients of plan mpound. rensically relev using reinsch to as and non – vo oom microsco	nical and and choo ectroscop nt extracts vant evide est. blatile poi pe, UV ra	toxicologica ose the mos y data. s (poisonous ence. isons. ays, IR rays	al evidence t appropria s plants), and oblique	te technique f
crime. 3. Gain analytical 4. Illustrate merit analysis. 1. Practicals 1. Practicals 1. To analyse and in 2. To identify differ 3. To perform the T 4. To perform TLC 5. Chromatographic 5. To study the mass 5. To study the mass 5. To perform paper 5. To verify lambert 5. To perform colou 1. Examination of d 2. Comparison of scores	I skills for examination o ts and demerits of all th terpret given FTIR Spec ent functional group base LC of cosmetic samples. of Ink samples. separation of active ingr s spectrum of a given con chromatography of a for ther's law. fferent metallic poisons u r tests for volatile poison ocuments under stereo z bil samples using microso	of various chen ne techniques trum. ed on given sp redients of plan mpound. rensically relev using reinsch te as and non – vo oom microsco copic and dens	ectroscop nt extracts vant evide est. olatile poi pe, UV ra sity-gradi	toxicologica ose the mos y data. s (poisonous ence. isons. ays, IR rays	al evidence t appropria s plants), and oblique	te technique f
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13. Books Recommended

 "Working Procedure Manual on Chemistry", Directorate of Forensic Science MHA Govt.of India, 2005.

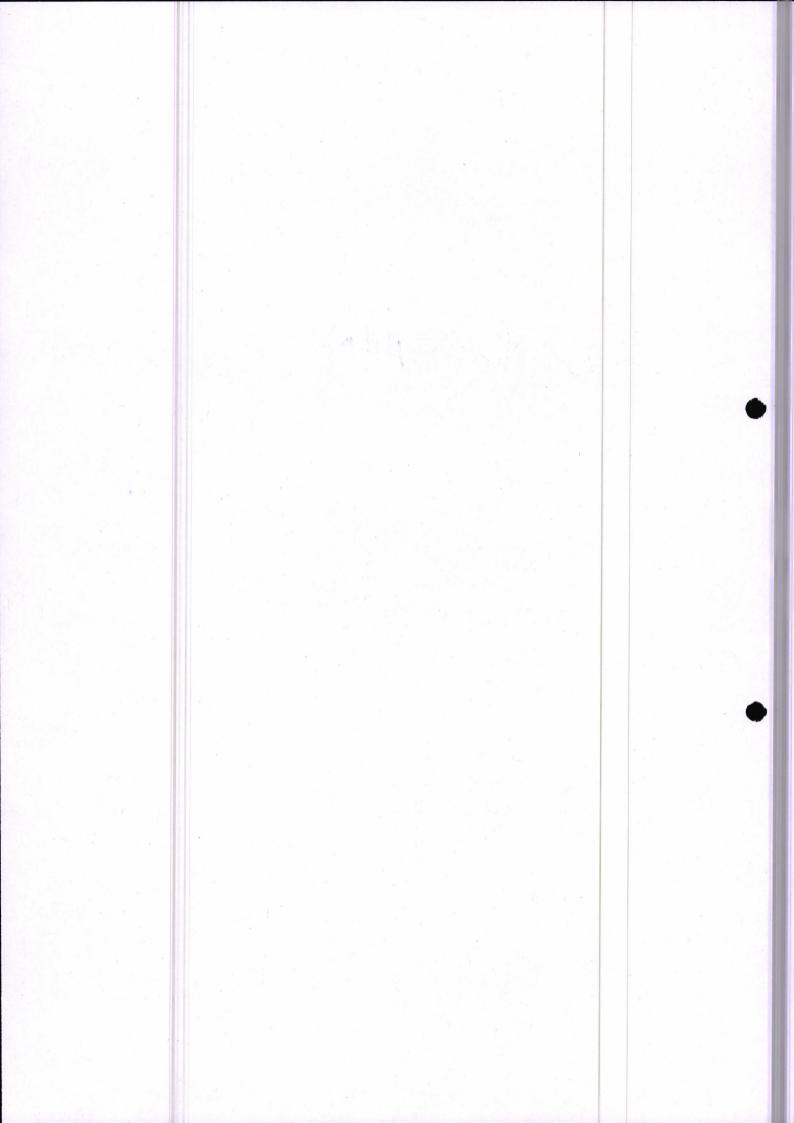
- 2. "Working Procedure Manual- Chemistry, Explosives and Narcotics", BPR&D, 2000.
- 3. DFS Manual of Forensic Toxicology
- A C Moffat Clarke's Analysis of Drugs and Poisons, (Formerly Isolation & Identification ofDrugs) 3rd Ed. 2 Vol.

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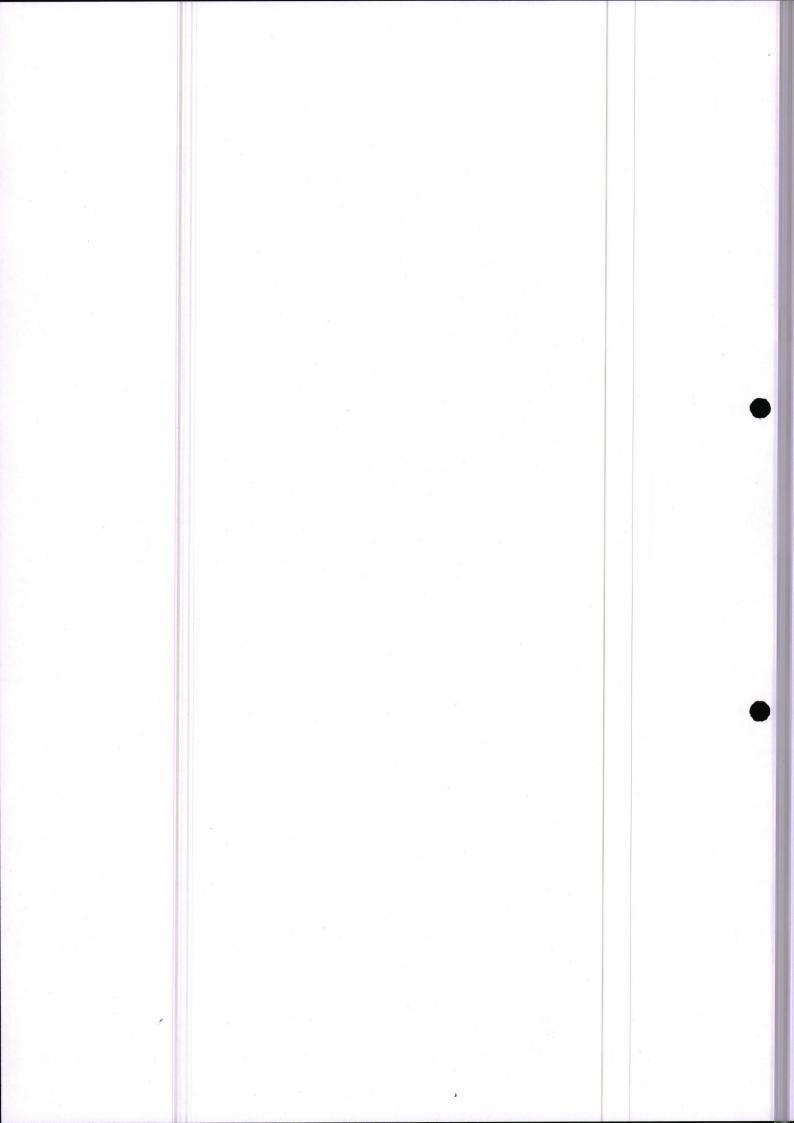
5. Casarett & Doll Toxicology (2003) The Basic Science of poisons.

or h

- 6. Clark, E.G.C. : Isolation and identification of Drugs, VI and Vol. II, 1966, 1975-1986.
- 7. Curry A.S (1986) Analytical Methods in Human Toxicology, Part II, CRC Press Ohio



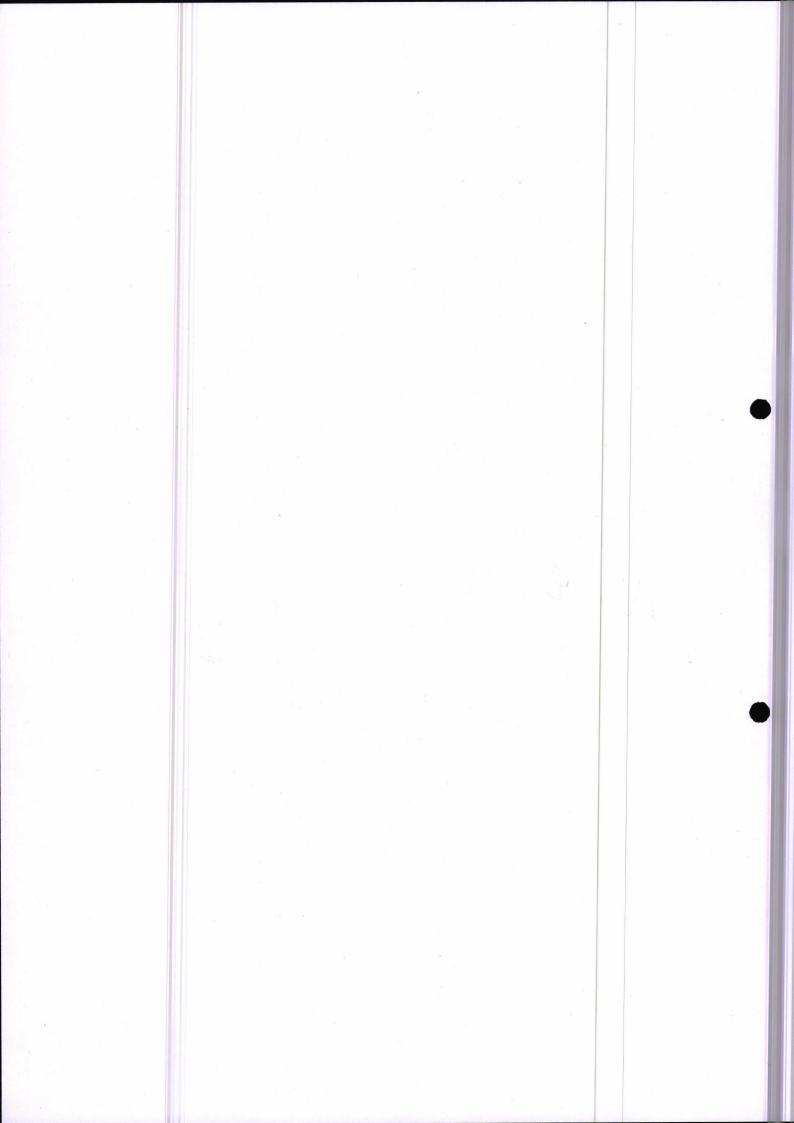
1. Name of the De	partment: Forensic Scier	nces				
2. Course Name	Security Documents an	d Its Examin	ation	L	Т	P
3. Course Code	17040613			4	0	0
4. Type of Course	(use tick mark)	Core ()	DSE(√)	AEC	SEC ()	OE ()
	1			0		
5. Pre-requisite	10+2 with Science	6.	Even (🗸)	Odd	Either	Every
(if any)	Stream	Frequency		0	Sem ()	Sem ()
		(use tick				
		marks)				
	of Lectures, Tutorials, Pr					
Lectures = 52		Tutorials =	Nil	Practi	cal = Nil	
8. Course Descript						
In this Domain Spe	cific Elective (DSE) cours	se the student	will gain kno	wledge	about diffe	erent types of
security documents	s, their security features,	and their ider	ntifiable parar	neters.	The studen	ts will learn
	ation of counterfeited see	curity docum	ents like sta	mp pap	ers, passp	orts, driving
	ls, bank cheques etc.					
9. Course Objectiv						
1 Developing on a	on following objectives:	- 4: 6 41	c			
	inderstanding and appreciation					
	he significance of security					
characteristics.	erstanding on different typ	bes of security	documents a	nd their	salient feat	tures and
	n on Donk notes, honk she	and Cast S	town Destaura		24.4	•
features and exa	n on Bank notes, bank che	ques, Govi. S	tamp Duty pa	pers alo	ng with the	eir security
10. Course Outcor				*		
Upon successful co	mpletion of this course, th	e students will	I be able to:	D		
1. Apply disciplin	ary knowledge of forensic	e examination	on Security	Docume	ents and th	err types for
Forensic cases.	turner and above stavistics -	£		•		
2. Demonstrate rea	atures and characteristics of Regime of Park	notes horizol	cuments in a n	nore crit	ical way.	1
5. Gain analytical their security fe	skills of features of Bank atures and examination.	notes, bank ci	leques, Govi.	Stamp	Duty paper	's along with
	blem solving skills rela	ted to the	vomination	and inc	terrenzantatio	an and for
identification of	security documents.	lied to the e	xammation a	and ins	trumentatio	on used for
11. Unit wise detai			£			
Unit-1	Number of lectures =	Title of the	unit: Introdu	uction to	o Security	Documents
Defining acquity 1	13		D · C 1 ·		0	
Defining security d	ocuments. Need of Securit	ty Documents	. Brief descrip	otion on	of security	documents,
	nd verification features. L rds, and bank cheques etc.	evers of secu	rity in a secu	rity doc	cument. Ve	erification of
Unit-2		Tidle of the	mit Diamat	10	** D	
Unit-2	Number of lectures = 13	The of the	unit: Dispute	ea Secu	rity Docur	nents
Describing dispute	d security documents. Ty	mes of disput	ad convrity d	0.01100.00	ta Calient	faaturaa faa
their identification	s. Instrumentation used	for their E	Eu security u	Evomir	is. Sallent	Educational
	pering or any fraudulent a			Examin	lation of	Educational
Unit – 3	Number of lectures =	Title of the r	unit. Bank or	d Cort	Stown D	an ore
Cinc J	13	The of the t	unit. Dalik al		. Stamp Pa	apers
Introduction to m	ajor Currency notes ac	ross the do	he Brief de	sorintic	n on Co	ioming and
Manufacturing bodi	ies in India. Salient feature	es for identific	ation of genu	ine ban	n off Gov	10, 100, 200
	A		unon or gonu		x notes of 1	10, 100, 200,
		Los th	Asha	$\rightarrow 1$		1th
R	in the o	. 4	//	M	~- 1	Jon
2	V			U	4	



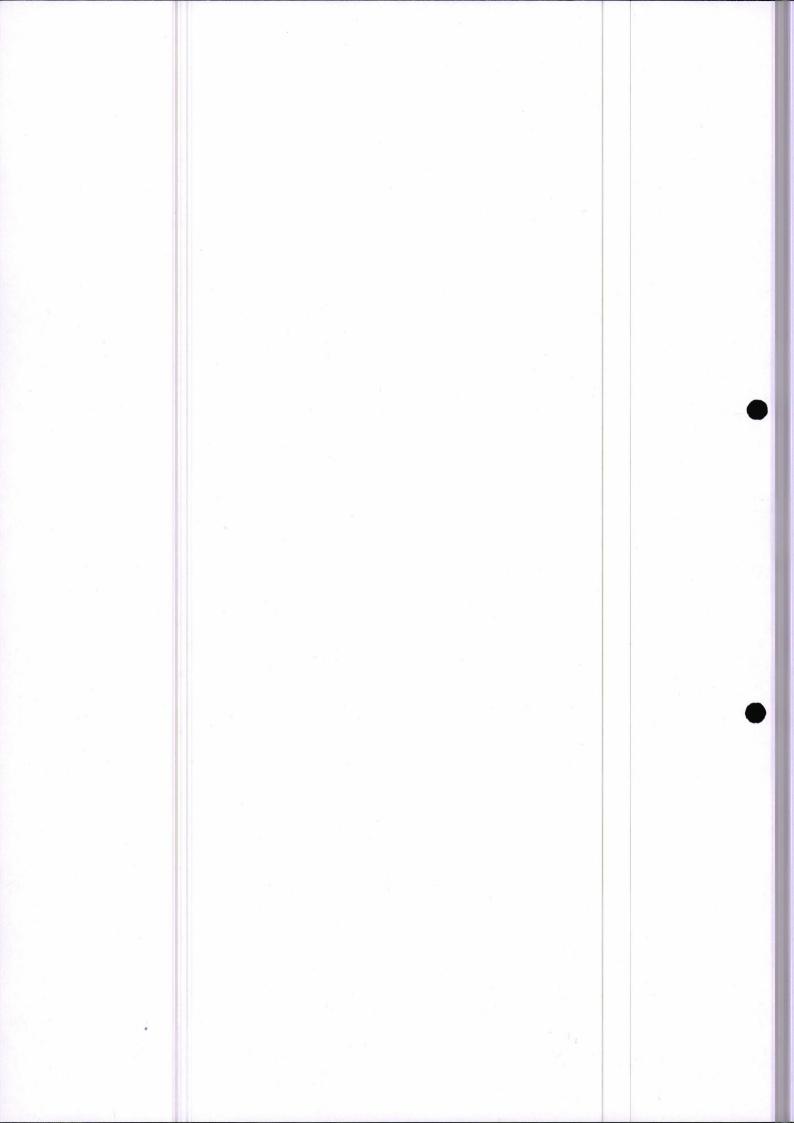
	of security features of Govt. Stamp Duty Papers. Forensic Cases related to these
documents.	
Unit – 4	Number of lectures = Title of the unit: Instruments, Analysis, Credit cards
	13
Use of magnif	ying glass, stereomicroscope, and comparison microscope. Application of UV and II
lights in the ex	amination of security features. Comparison of security features in credit and debit cards
	ounterfeited security document. Case studies and Report Writing.
12. Brief Desc	ription of self-learning / E-learning component
	ription of self-learning / E-learning component v.youtube.com/watch?v=7FPrba70r_8
1. https://www	v.youtube.com/watch?v=7FPrba70r_8
1. <u>https://www</u> 2. <u>https://www</u>	v.youtube.com/watch?v=7FPrba70r_8 v.youtube.com/watch?v=gDuiwtRp1m0
 <u>https://www</u> <u>https://www</u> <u>https://www</u> 	v.youtube.com/watch?v=7FPrba70r_8 v.youtube.com/watch?v=gDuiwtRp1m0 v.youtube.com/watch?v=DkGdAclh214
 <u>https://www</u> <u>https://www</u> <u>https://www</u> <u>https://www</u> 	v.youtube.com/watch?v=7FPrba70r_8 v.youtube.com/watch?v=gDuiwtRp1m0

- 1. Charles, C. Thomas, I.S.Q.D. Identification System for Questioned Documents, Billy Prior Bates, Springfield, Illinois, USA, 1971.
- 2. Lingaed, J. R., (1985). Bank Security Documents, Butterworths.
- 3. Budhram, T., (2007). Examining the Unique Security Features of a Credit Card with the Aim of Identifying Possible Fraudulent Use, University of South Africa.
- 4. Fumy, W. and Paeschke, M. (2011). Handbook of e- ID Security, Publicis Publishing.
- 5. Kelly, J. S. Lindblom, B. S. (2006). Science, Handwriting Examination and the Courts. Scientific Examinations of Questioned Documents, 2nd edition, CRC Press, Taylor & Francis group.

Asta lsoch C



2. Course Name		Sciences				
	Security Documents	s and Its Examin	ation Lab	L	Т	Р
. Course Code	17040614			0	0	4
. Type of Course	(use tick mark)	Core ()	DSE(✔)	AEC	SEC ()	OE ()
				0		
5. Pre-requisite	10+2 with Science	6.	Even(✓)	Odd ()	Either	Every
(if any)	Stream	Frequency			Sem ()	Sem ()
		(use tick				
Total Number of	of Lectures, Tutorials	marks)				
Lectures = 00	i Lectures, rutoriais	Tutorials =	00	Practic	al = 52	
. Course Descrip	tion:	<u>i utoriais</u>	00	Tractice	ai 52	
	ecific Elective (DSE)) course the stude	ent will gain	n the pra	ctical know	wledge abo
	security documents, t					
	examine the counterfe					
	ls, bank cheques etc.					
. Course Objectiv						1. See
The course focuses	on following objectiv	es:				
	understanding and app					
	he significance of secu					a Roman da P
	erstanding on differen	it types of security	documents	and their	salient fea	itures and
characteristics.	D 1 1 1				.1.1	
	n on Bank notes, bank	c cheques, Govt. S	tamp Duty p	papers alo	ong with the	eir security
features and exa						
0. Course Outcor						
non successful co	muletion of this cours					
		e, the students wil			1.1.	C
. Apply disciplina	ary knowledge of fore				its and thei	r types for
. Apply disciplina Forensic cases.	ary knowledge of fore	nsic examination	on Security	Documen		r types for
 Apply disciplination Forensic cases. Demonstrate feat 	ary knowledge of fore	nsic examination of security doc	on Security cuments in a	Documen more crit	tical way.	
 Apply disciplination Forensic cases Demonstrate feat Gain analytical 	ary knowledge of fore atures and characterist skills of features of Ba	nsic examination of security doc ank notes, bank ch	on Security cuments in a	Documen more crit	tical way.	
 Apply disciplination Forensic cases Demonstrate feat Gain analytical their security feat 	ary knowledge of fore atures and characterist skills of features of Ba atures and examination	nsic examination of the security doction of security doction of security doction of the security doction of the security of th	on Security cuments in a leques, Gov	Documen more crit t. Stamp I	tical way. Duty paper	s along wit
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 Apply disciplina Forensic cases. Demonstrate fea Gain analytical their security fea Apply the problection of identification of List of Experiment To Examine the features. To Study and ar To Study and ar To Study and ar To Study and ar 	ary knowledge of fore atures and characterist skills of features of Ba atures and examinatio em solving skills relat f security documents. nents e security features of co alysis of security feat halysis of security feat halysis of security feat halysis of security feat	nsic examination of ics of security doc ank notes, bank ch n. red to the examina urrency notes of In currency notes of ures of Indian Pas ures of any one Fo ures of Bank Cheo ures of Govt. Stan	on Security cuments in a leques, Gove tion and inse ndia and stu- foreign cour sport. preign Passp ques. np Duty Pap	Documen more crit t. Stamp I trumentat dying the ntries and port.	tical way. Duty paper ion used fo	s along with or features.
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 Apply disciplina Forensic cases. Demonstrate fea Gain analytical their security fea Apply the problic identification of List of Experimination of To Examine the features. To Study and an 	ary knowledge of fore atures and characterist skills of features of Ba atures and examinatio em solving skills relat f security documents. nents e security features of co alysis of security feat halysis of security feat counterfeited currence counterfeited Govt. S	nsic examination of ics of security doc ank notes, bank ch n. red to the examina urrency notes of In currency notes of In currency notes of ures of Indian Pas ares of any one Fo ures of Bank Cheo ures of Govt. Stan ures of Education I certificates. stamp Papers	on Security cuments in a leques, Gove tion and insection ndia and stu- foreign court sport. preign Passp ques. np Duty Pap al Certificat	Documen more crit t. Stamp I trumentat dying the ntries and port.	tical way. Duty paper ion used fo	s along with or features.

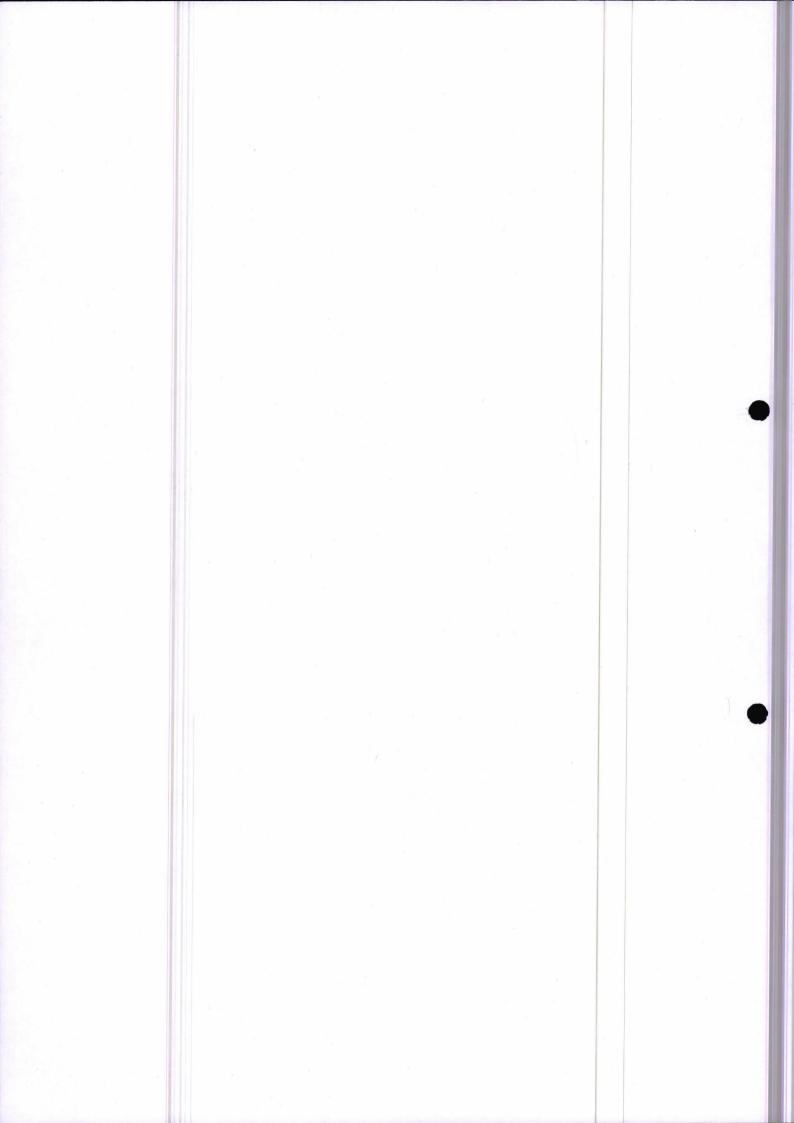


- 1. <u>https://www.youtube.com/watch?v=7FPrba70r_8</u>
- 2. <u>https://www.youtube.com/watch?v=gDuiwtRp1m0</u>
- 3. <u>https://www.youtube.com/watch?v=DkGdAclh214</u>
- 4. <u>https://www.youtube.com/watch?v=mQxH1EZA7II</u>
- 5. <u>https://www.youtube.com/watch?v=i6AVF0GhxNk</u>
- 6. <u>https://www.youtube.com/watch?v=7aUtNuqek8M</u>

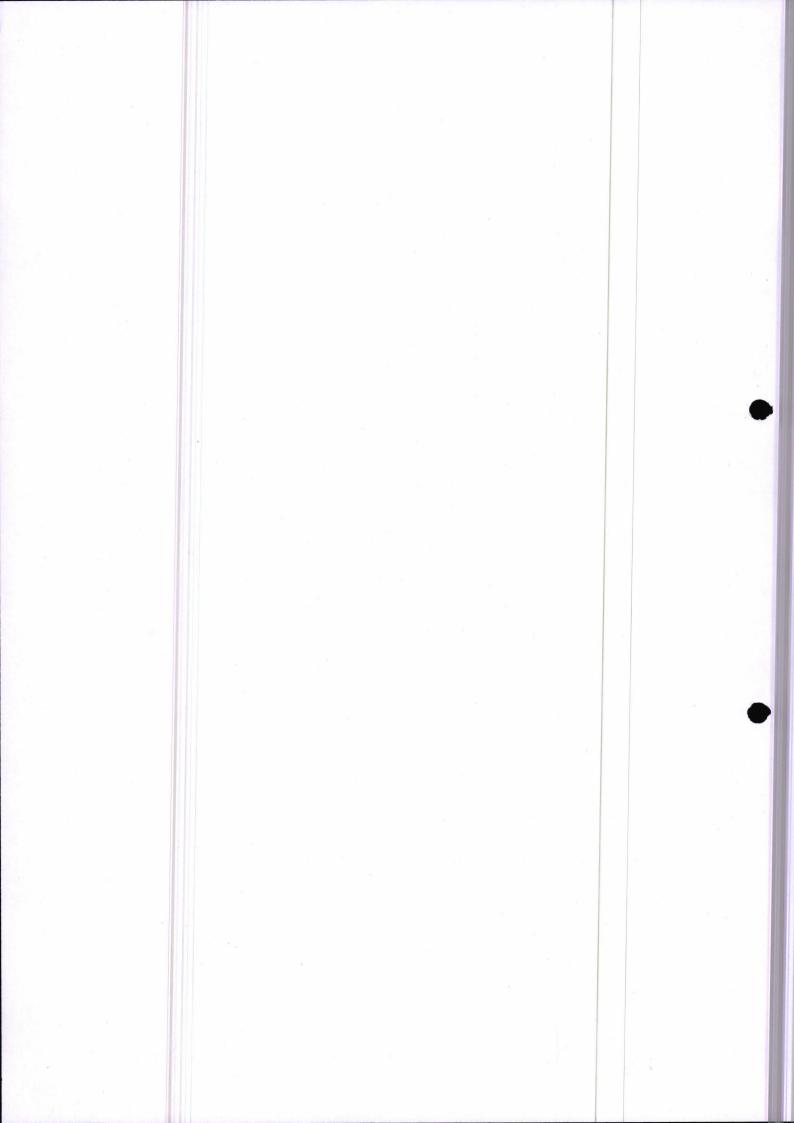
13. Books Recommended

- Charles, C. Thomas, I.S.Q.D. Identification System for Questioned Documents, Billy Prior Bates, Springfield, Illinois, USA, 1971.
- 2. Lingaed, J. R., (1985). Bank Security Documents, Butterworths.
- 3. Budhram, T., (2007). Examining the Unique Security Features of a Credit Card with the Aim of Identifying Possible Fraudulent Use, University of South Africa.
- 4. Fumy, W. and Paeschke, M. (2011). Handbook of e- ID Security, Publicis Publishing.
- 5. Kelly, J. S. Lindblom, B. S. (2006). Science, Handwriting Examination and the Courts. Scientific Examinations of Questioned Documents, 2nd edition, CRC Press, Taylor & Francis group.

Asta Jell Bh h



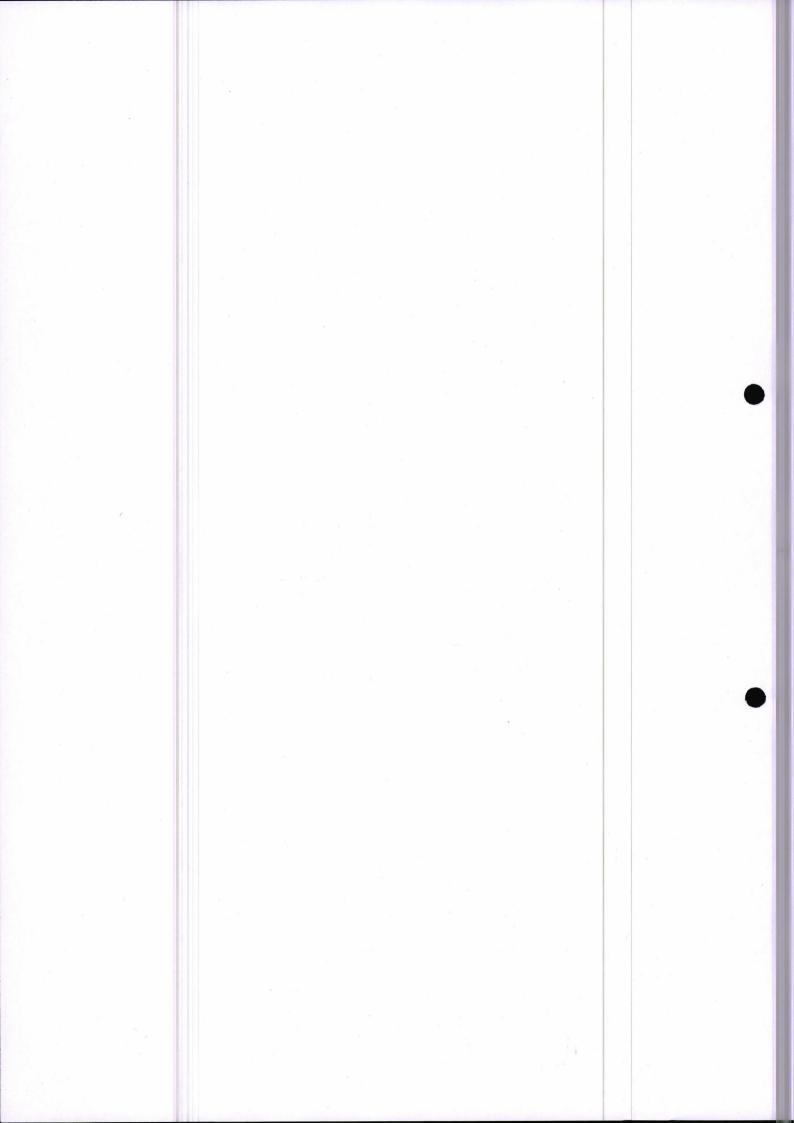
1. Name of the Depa	rtment: Forensic Scien	ce				
2. Course Name	Instrumentation in Que	estioned Docu	ments	L	Τ	P
3. Course Code	17040615			4	0	0
4. Type of Course (u	ise tick mark)	Core ()	DSE (✓)	AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even (✔)	Odd ()	Either Sem ()	Every Sem (
7. Total Number of]	Lectures, Tutorials, Pra	ctical				
Lectures = 52		Tutorials =)0	Practical	= 00	
. Course Descriptio	n:					
end instruments.	course are to: parison of handwriting a vance and implementat			이 있는 것 ³ 같이 ?		
examination.				turnination	ioi quesu	oned document
10. Course Outcome	s (COs):					
Jpon successful com	pletion of this course, the	students will	be able to:			
. Research Related	Skills for comparing que	stioned docum	ent throug	gh instrume	ntation tech	niques
microscopic exam						
 Analytical / Science documents. 	entific Reasoning that	explains the	working	and applic	cations of	photography o
4. Critical Thinking	and Problem Solving of i	ndentation ma	rks on a de	ocument by	ESDA	
1. Unit wise detaile	d content	•				
Unit-1	Number of lectures	Title of the u	nit: Inst	rumentatio	on techniqu	es
Basic Principles & '	Techniques Visible and	Florescence	(UV and	IR), Cross	sline Exam	ination System
BZ	h ke	\$h 1.	pha	Y	>	db.



TI:4 3	Number	
Unit – 2	Number of lectures	Title of the unit: Microscopic Examination
Photomicrograph	y & Microphotography, Wo	rking and application of Stereo-zoom Microscopy
Unit – 3	Number of lectures	Title of the unit: Electrostatic Detection Apparatus (ESDA) and Video Spectral Comparator (VSC)
ESDA: History,	principle and components	of ESDA, preparation of ESDA, Implementation of ESDA
actors influencir	ig the quality of final image	by ESDA, Application of electrostatic detection device
vSC: Features of ntersecting stroke	es and other applications of V	ment under various light sources, Determination of sequence o
Unit -4	**	Title of the unit: Document photography
	13	The of the unit. Document photography
		nite and colour photography. Specialized photography - UV, IR
		close-up photography, trick photography, contact photography
		emonstrative and juxtapose charts. Digital photography, file
		narking and digital imaging. Photogrammetry & Radiography.
12. Brief Descrip	tion of self-learning / E-lea	arning component
1. <u>https://www.y</u>	outube.com/watch?v=9RYD	hw5yjrM
	outube.com/watch?v=2WPd	
	outube.com/watch?v=yhVFk	
	outube.com/watch?v=S3zNA	
	outube.com/watch?v=0LI0H outube.com/watch?v=S yrfc	
	outube.com/watch?v=6lKM2	
-	outube.com/watch?v=bYyw	
13. Books Recom		
Ordway Hilton	a: Scientific Examination of	Questioned Documents. Revised Edition, Elsevier, NY (1982).
2. Albert S. Osh	orn: Questioned Documents	2nd Ed., universal Law Pub., Delhi (1998).
		nd Ed., Universal Law Pub. Delhi (1998)
		System for Questioned Documents, Billy Prior Bates
	linois, USA (1971)	
5 Wilson D II		heir Scientific Examination, Universal Law Pub. Delhi Indian
Reprint (2001)		
Reprint (2001) 6. Morris Ron N	; Forensic Handwriting Ident	tification, Acad Press, London (2001)
Reprint (2001) 6. Morris Ron N 7. Kurtz Sheila; (Forensic Handwriting Ident Graphotypes a new Plant on	Handwriting Analysis, Crown Pub. Inc., USA (1983)
Reprint (2001) 6. Morris Ron N 7. Kurtz Sheila; 8. Lerinson Jay;	Forensic Handwriting Ident Graphotypes a new Plant on Questioned Documents, Aca	Handwriting Analysis, Crown Pub. Inc., USA (1983) d Press, London (2001)
Reprint (2001) 6. Morris Ron N 7. Kurtz Sheila; 8. Lerinson Jay; 9. Mcmenamin C	Forensic Handwriting Ident Graphotypes a new Plant on Questioned Documents, Aca Gerald R, Forensic Linguistic	Handwriting Analysis, Crown Pub. Inc., USA (1983)
Reprint (2001) 6. Morris Ron N 7. Kurtz Sheila; 8. Lerinson Jay; 9. Mcmenamin C	Forensic Handwriting Ident Graphotypes a new Plant on Questioned Documents, Aca	Handwriting Analysis, Crown Pub. Inc., USA (1983) d Press, London (2001)

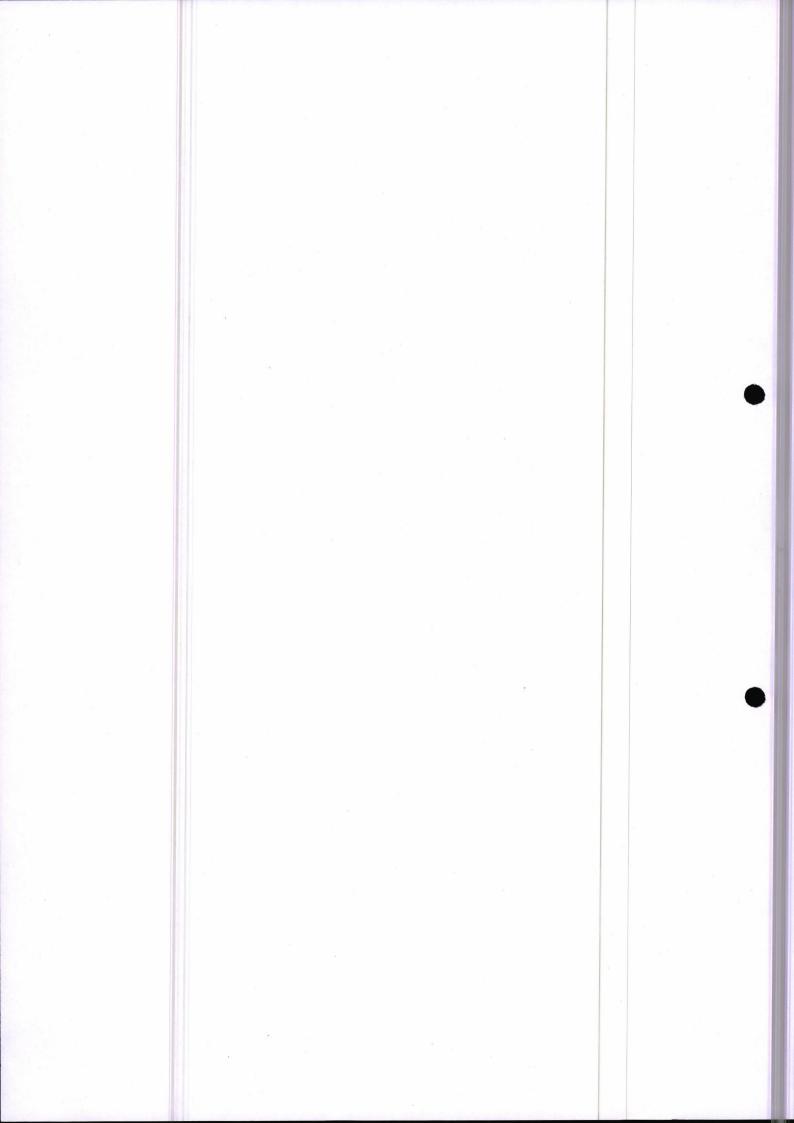


1. Name of the Depar	tment: Forensic Sciend	ce			, 	
2. Course Name	Instrumentation in (Questioned D	ocuments	L	Τ	P
	Lab					
3. Course Code	17040616			0	0	4
4. Type of Course (us	ourse (use tick mark)Core ()DSE(✓)			AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even (✓)	Odd()	Either Sem ()	Every Sem ()
7. Total Number of L	ectures, Tutorials, Pra	ctical				
Lectures = 00		Tutorials = ()0	Practical	= 52	
8. Course Description	1:					
 9. Course Objectives The objectives of this 1. Compare Handwrit 2. Photography of que 3. Explain how to rep 	ing samples written on d estioned documents ort cases in the court of graphy and enhancement	lifferent surfac	ces.		5. Factors	>
 Upon successful comp 1. Disciplinary Know 2. Critical Thinking a 3. Analytical / Scienti fingerprints. 4. Ethics of report writing 11. List of experiment 	letion of this course, the ledge of different types nd Problem Solving to c fic Reasoning that expla iting ts	of Inks. compare Handv ains the workir	writing sar ng and app	nples writte lications of	n on differ photograpl	ent surfaces. hy of
 To conduct the Exa To conduct the Exa To conduct the Cor To study the Exam 	imination of Inks nparison of Inks ination of scripts	vritten on diffe	rent surfac			
BZ	M A	95 1	yora	Y		Xal

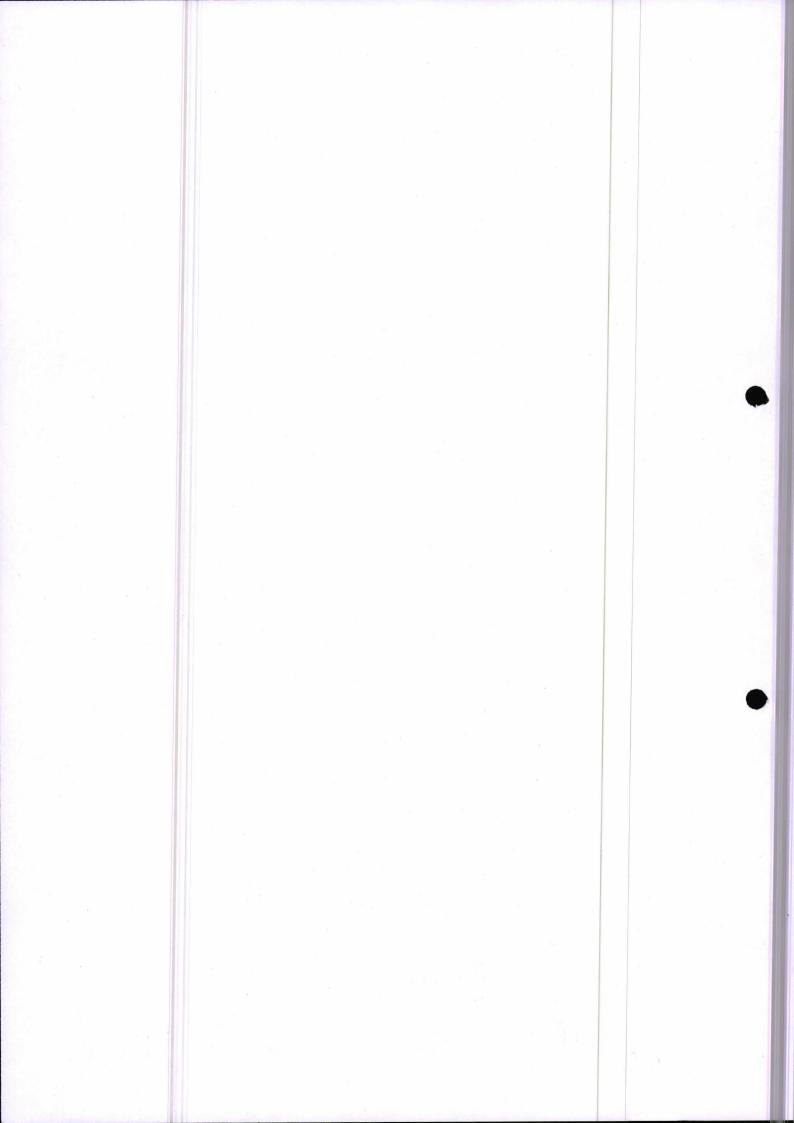


- 6. To study the different angles of Photography of questioned document
- 7. To study the Comparison of a questioned document with known sample
- 8. To study the making of Report writing.
- 12. Books Recommended
- DFSS, CFSL and SFSL Manuals

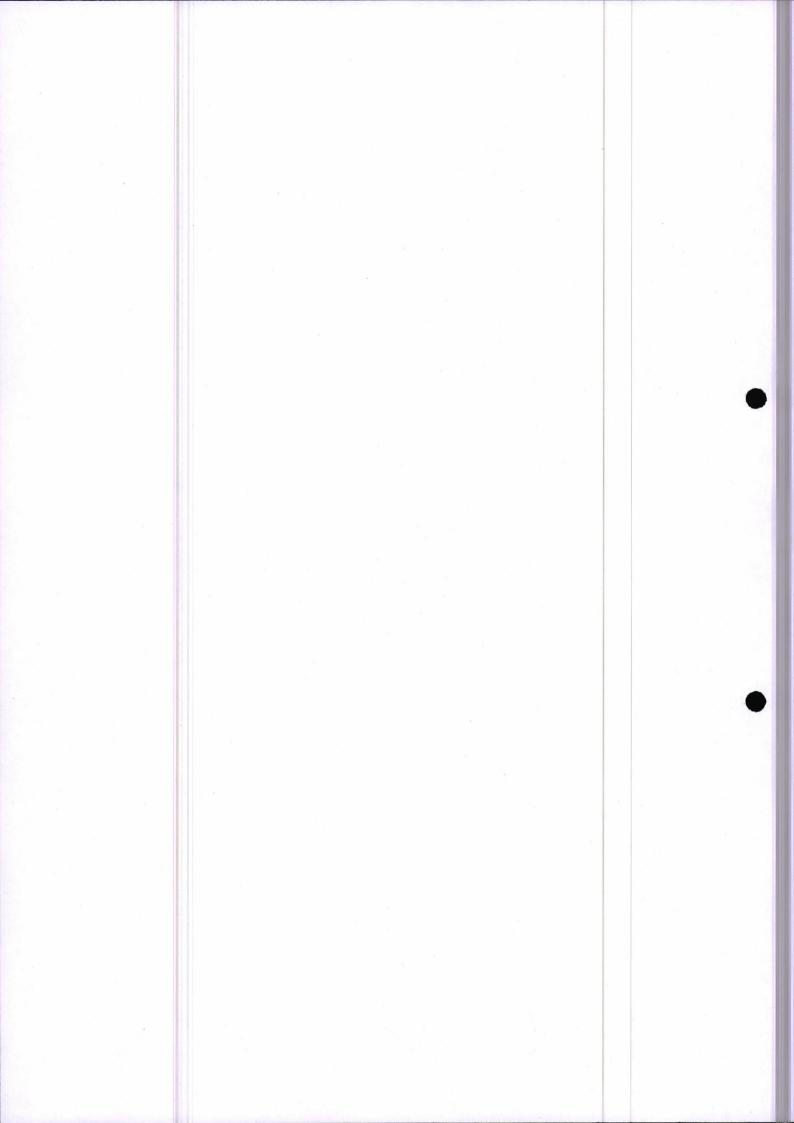
Manuals Le Lege Asta V.



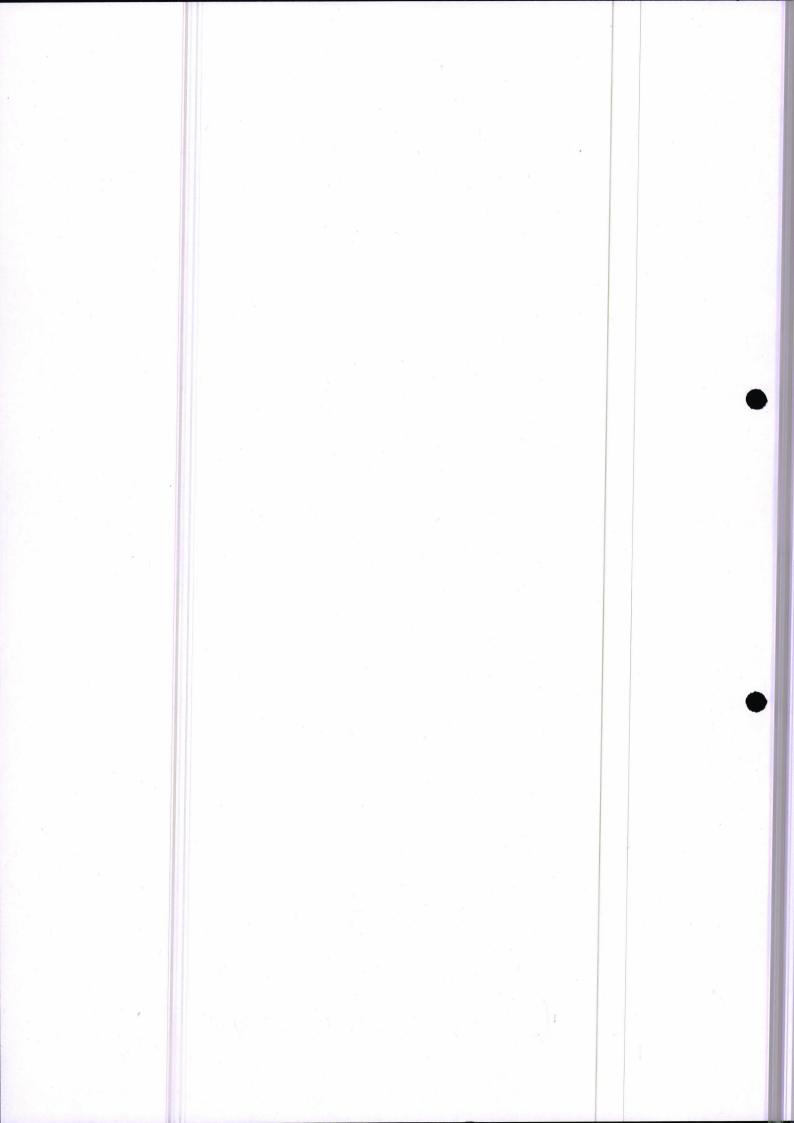
1. Name of the Depar	tment: Forensic Science	ce				
2. Course Name	Network Forensics			L	Τ	Р
3. Course Code	17040617 4			4	0	0
4. Type of Course (us	e tick mark)	Core () DSE (✓)		AEC ()	SEC ()	OE ()
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even (✓)	Odd()	Either Sem ()	Every Sem ()
7. Total Number of Lectures, Tutorials, Practical						
Lectures = 52		Tutorials = ()0	Practical	=00	
 protocols; security and 9. Course Objectives 1. To impart fundame 2. To provide a platfo 3. entrepreneurships a 4. To improve student case studies and res 10. Course Outcomes 1. Investigate and exp Precisely hypothesis critical thinking and 3. Analyse and describ 	(COs): lain the real time forens ze and reconstruct the e	nd vulnerabilit vledge essentia nd develop the field of netwo gating networl ic issues in net vents surround al and experim	y and def l for exar skills to rk forensi c attacks work sys ing a net ental data	fence mination of r take up ics. and present tem work securit	network sys them in the y attack bas forensic inv	form of reports, sed on their vestigation
11. Unit wise detailed	content					
Unit-1						
security. Various comp WAN) in an investigat	Introduction. Computer Networking- Digital and Analog Signalling Methods Host security and network security. Various components of computer networks. Significance of computer networks (i.e., internet, LAN, WAN) in an investigation. Different types of IP Addresses and Classes, Subnet Masks, Subnetting and Super -netting, web cache/traffic, Traffic types					
Unit – 2	Number of lectures	Title of the u	nit: Netv	vork Attack	S	
Bre	if the	84 A	bha	14-		all



Transformeters	1				
		oofing, modification, Cross-site scripting, DNS Spoofing, eb Jacking. Attacks on Wireless Networks. Social Engineering			
		of authentications, Attacks on WEP, WPA and WPA-2			
Encryption, fake hots		or automications, Attacks on WEF, WFA and WFA-2			
Unit -3	Number of lectures	Title of the unit: Security in Networks			
IP security architectur	e. Security protocols. I	P Sec, Web Security – Firewalls, IDS, IDPS. Network Security			
		isswords, Cryptographic authentication protocol			
Unit -4	Number of lectures	Title of the unit: Investigation of Network attacks			
		5			
Monitoring of comp	uter network and acti	vities, Live Packet Capturing and Analysis. Searching and			
		etwork Intrusion Detection and Analysis. Event Log analysis-			
		attacks. Evidence collection from Routers other networking			
	mvesugating network	attacks. Evidence conection from Routers other networking			
devices.					
12. Brief Description	of self-learning / E-lea	arning component			
		gs-for-cybersecurity-specialists/online-training-			
		ork-forensics-handbook.pdf			
		CS703_EL_Fall-2017.pdf			
	be.com/watch?v=Ryfg4				
	be.com/watch?v=jPQC				
	be.com/watch?v=iVsfG				
	be.com/watch?v=Ryfg4				
7. <u>https://www.ijcset</u>	.com/docs/IJCSET14-05	5-02-0/4.pdf			
13. Books Recommer	ided				
1 Goval R M and Pa	warMS (1004) Com	outer crimes- concept, control and prevention, Sysman			
Computer Pvt. Ltd		such ennies- concept, control and prevention, systilan			
		s: A Guide to Evidence Collection, Analysis, and Presentation,			
1st edition, McGra		s. A Guide to Evidence Concetion, Analysis, and Presentation,			
		cessing: The Fundamentals, Wiley.			
		Cybercriminals, Laws, and Evidence, 2nd edition, Jones &			
Bartlett Learning 2					
		or seizing electronic evidence v.3: A Pocket Guide for First			
	partment of Homeland				
6. Robert Moore. Cyl	bercrime: Investigating	High-Technology Computer Crime, 2nd edition, Routledge			
2015					
	d Edition), Electronic C	rime Scene Investigation: A Guide for First Responders, NIJ			
publication.	publication.				
	rensic Examination of I	Digital Evidence: A Guide for Law Enforcement, NIJ			
	Publication.				
		g, Oxford University Press.			
		aud, Computing Mcgraw-Hill.			
		K.V. (2003), Computer Crime & Computer Forensics, Select			
Publisher, New De		aion S. (2000) Digital Incore Duraning M. C. Mill 17			
		ajan S. (2009), Digital Image Processing, McGraw Hill. 17.			
Source.	1995), Comput	ter Crime techniques Prevention, New Delhi Galgotia Book			
bource.	Δ				
	ON -	togh Asta Lan 10			



	artment: Forensic Scien						
2. Course Name	Network Forensics Lab 17040618			L	Τ	P	
3. Course Code				0	0	4	
4. Type of Course (use tick mark)		Core()	DSE (✓)	AEC ()	SEC ()	OE ()	
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even (✓)	Odd()	Either Sem ()	Every Sem	
	Lectures, Tutorials, Pra						
Lectures = 00		Tutorials = (00	Practical	Practical = 52		
Course Objective	s:						
Perform end to enCollect evidence f	vidence in both wired and d forensic investigations from log files How to use	typical forens	ic investi				
. Follow a scientifie 0. Practical	c approach to investigate	network secur	ity events	s and incider	nts		
. To Study the wirel	ana daniana						
	ess networks and wireless	s network anal	vsis				
	rstanding dynamic and sta	()		ML Source	and HTTP I	Headers.	
	erstanding Header Information	문화 감사가 하지만.	Ū				
. To study and demo	onstrate URL Manipulatio	n					
. To conduct the Ide	ntification and investigati	ion of website	spoofing				
. To study the Work	ing with Wire Shark for N	Network analys	sis.				
. Studying of packet	s and packet formats.						
. To study Network	evidence collection offlin	e and online.					
p.E	i the of	Segle	Art	ka Y		Jatt	



10. To demonstrate the Recovering of deleted files

11.Retrieving internet activity

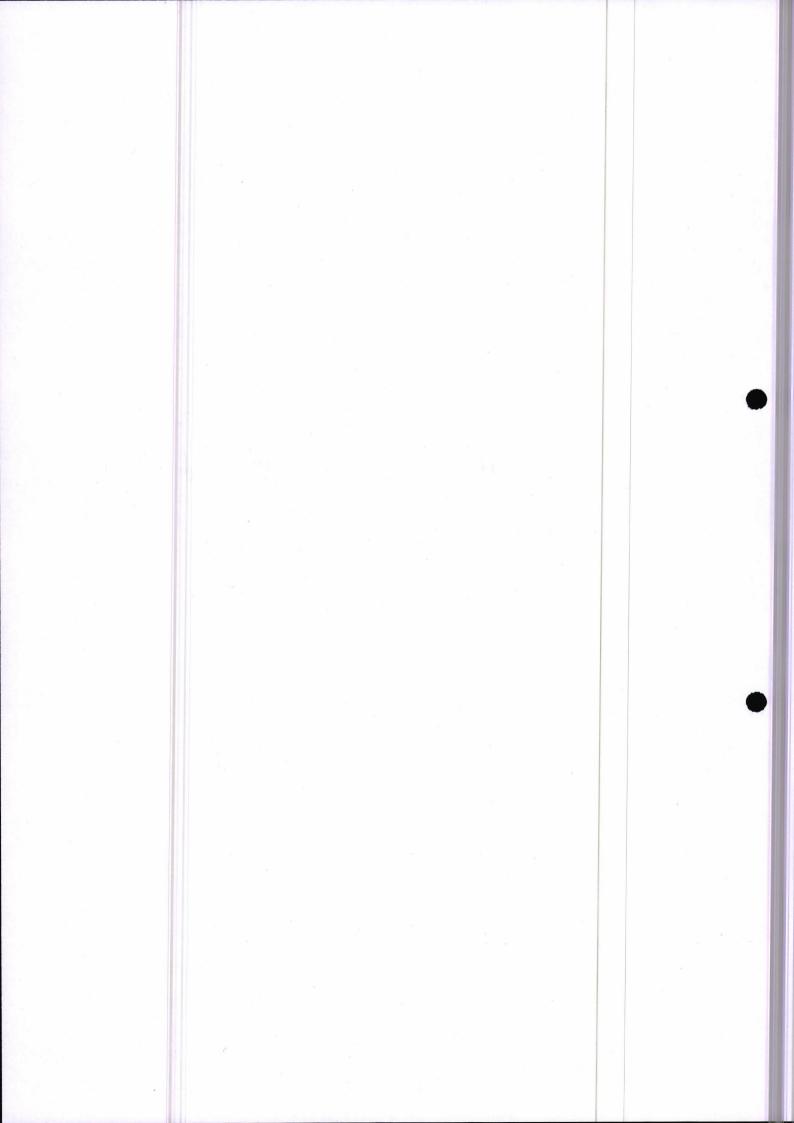
12. To study how to Secure a Windows server Network

13. To study the Creating and securing LAN and WAN

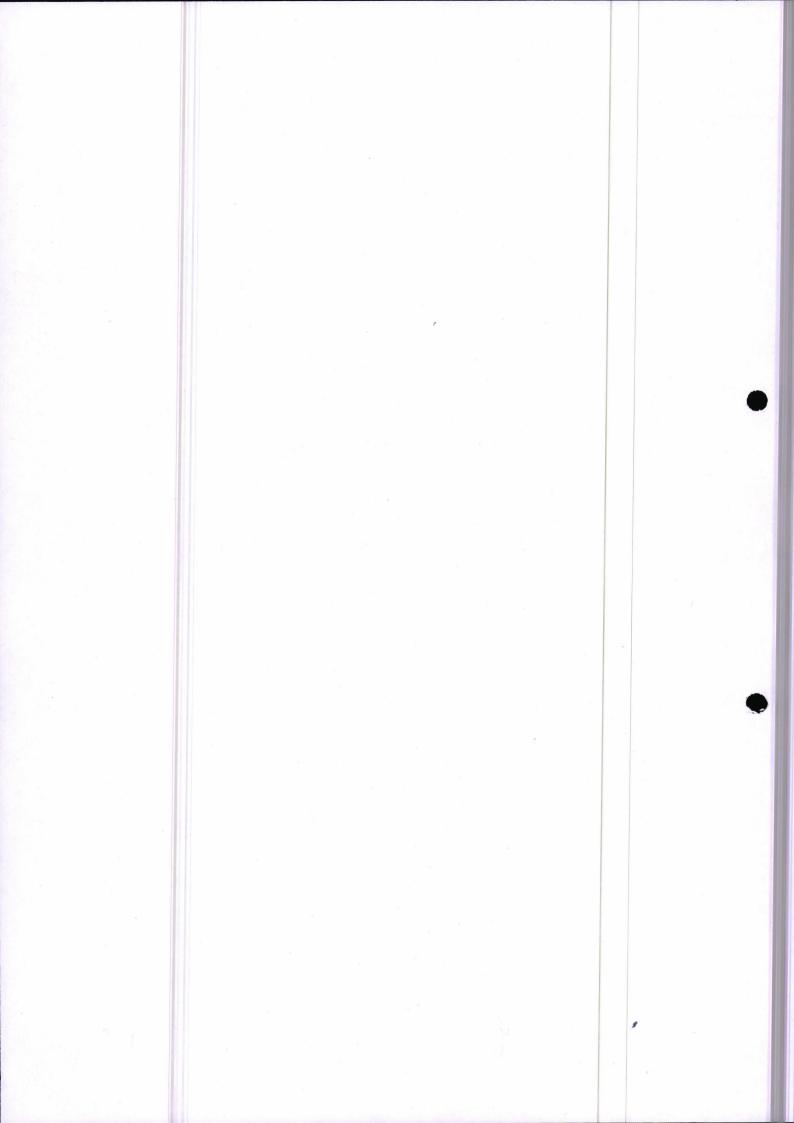
11. Books Recommended

- 1. Lab Manual of DFSS
- 2. Real Digital Forensics by Keith j.Jones, Richard Bejitlich, Curtis W.Rose , AddisonWesley Pearson Education
- 3. Forensic Compiling, A Tractitioneris Guide by Tony Sammes and Brain Jenkinson, Springer International edition.
- 4. Computer Evidence Collection & Presentation by Chrostopher L.T. Brown, Firewall Media.
- 5. Homeland Security, Techniques& Technologies by Jesus Mena, Firewall Media.
- 5. Software Forensics Collecting Evidence from the Scene of a Digital Crime by Robert M.Slade ,TMH 2005
- 7. Windows Forensics by chad Steel, Wiley India Edition.

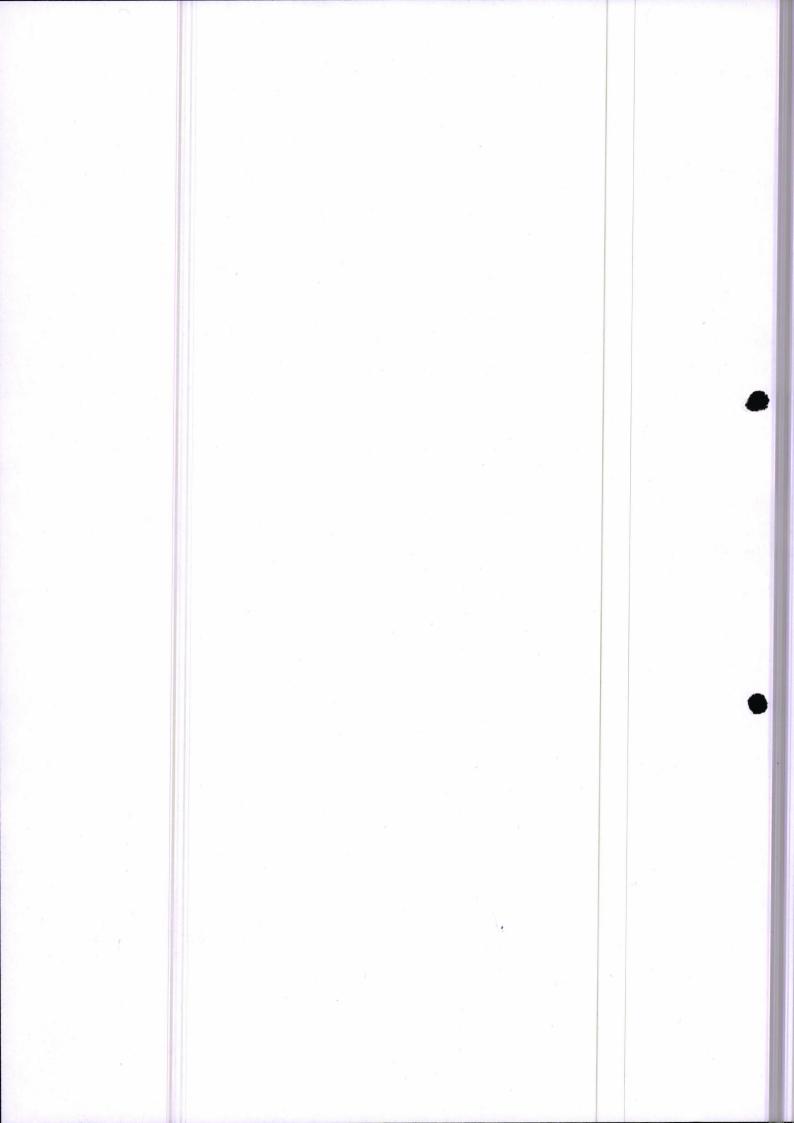
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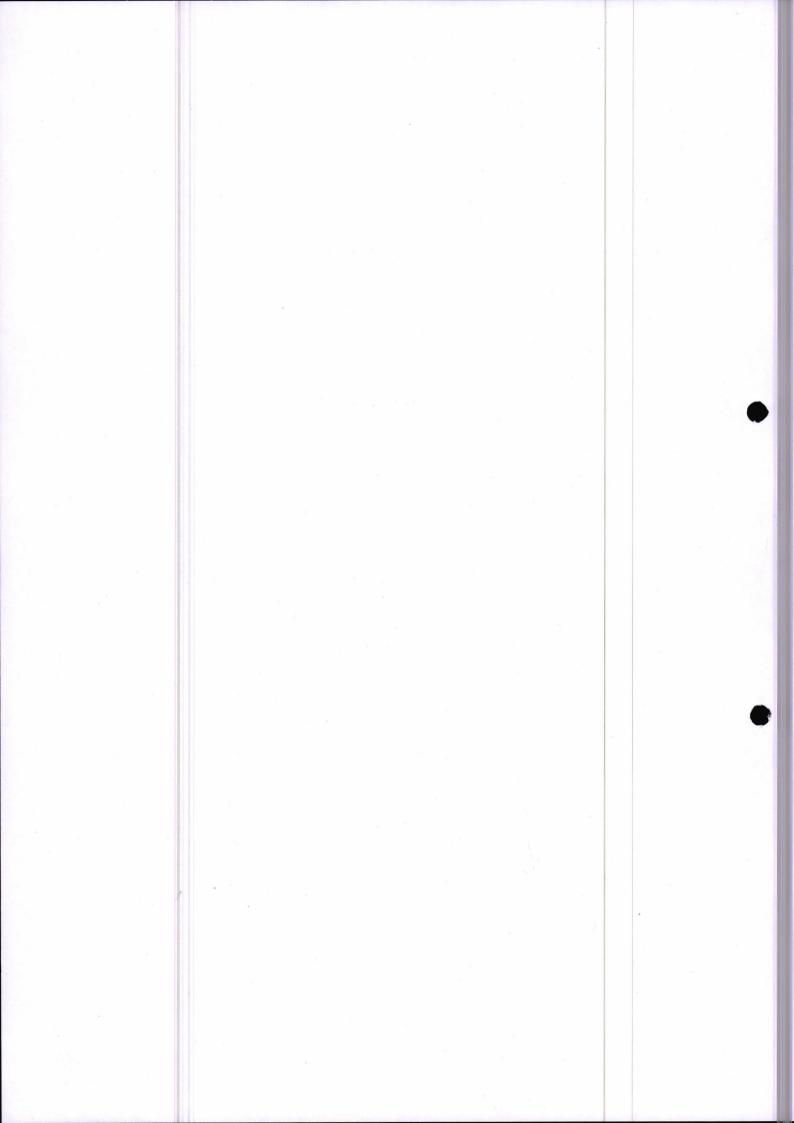
1. Name of the Depar	tment: Forensic Science	ce				
2. Course Name	Data Acquisition and C	Cloud Forensic	S	L	Τ	P
3. Course Code	17040619			4	0	0
4. Type of Course (us	se tick mark)	AEC ()	SEC ()	OE ()		
5. Pre-requisite (if any)	10+2 with Science stream.	6. Frequency (use tick marks)	Even(√)	Odd()	Either Sem ()	Every Sem ()
7. Total Number of L	ectures, Tutorials, Pra	ctical			I	
Lectures = 52		Tutorials = (0	Practical :	= 00	
8. Course Description	1:					
 of data about the real v Acquisition form va conversions. 9. Course Objectives 1. To introduce studer 2. To learn the composition 3. To learn the basics 4. To study and appression 		nalyze it later. of forensic in als. amming langua Q), principles,	It will also vestigation nges. concepts a	o suitable fo ns along wa	or the studen ith the tech	nts to learn Data niques of data
10. Course Outcomes	(COs):					
	edge of identity of data, yout the types of technique nalytical skills of data action data amplification, signation with at least one software content	ues and sensor equisition in fo al conditioning	to measur rensic inve , and Ana	e a specific estigations. log-to-Digit	data. al conversio	on.
Unit-1	Number of lectures = 13	Title of the Types	unit: Pro	gramming	Languages	s, Data and its
Different Types of Pro Quality; Data Wareho Problems related to Da	ogramming Languages; Dusing; Data Transformata.	Learning Pytho ations; Metada	on; Definitita and its	ng Data; Da Significan	nta Types; F ce; Multim	Raw Data; Data odal Data, and
Unit – 2	Number of lectures = 13	Title of the u	nit: Intro	duction to]	Data Acqui	isition (DAQ)
	stor L	J&g	ú l	Joha	\f	Bre



Data Acquisition (DAQ) and Understanding; Data Acquisition Overview; Sensor Types Overview
Application Areas and Trends; Data Acquisition System Feature: System Components, Signa Characteristics, Signal Conditioning, Signal Source and Measurement System Configuration; Voltage
resolution; Quantization error; Methods of representation; Shared/Exchanged Data Considerations
Unit – 3 Number of lectures Title of the unit: Analog to Digital Conversion
= 13
Aligning similar Data; Imputing Missing Values; Data Review; Feature selection and extraction; Key analog
to digital conversion parameters; Measurement Errors; Triggers; Accuracy requirements; Authoritative Data
Source, LabVIEW Introduction; LabVIEW - Sub VIs; Introduction to LabJack, Filters (signal conditioning)
Amplification (signal conditioning)
Unit -4 Number of lectures = Title of the unit: Cloud Forensics
13
Introduction to Cloud Forensics and Incident Response; tools, techniques, and procedures necessary to
effectively locate, identify, and collect data; Cloud Infrastructure and IR data sources; Microsoft 365 and
Giraph API; AWS Incident Response; SOF-ELK(R) Virtual Machine; Cloud Security Attacker Techniques
Monitoring, and Threat Detection; Cloud Security Essentials
12. Brief Description of self-learning / E-learning component
1. <u>https://www.mccdaq.com/data-acquisition</u>
2. <u>https://www.omega.com/en-us/resources/daq-systems</u>
3. <u>https://www.electronics-notes.com/articles/test-methods/data-acquisition-daq/understanding-data-acquisition.php</u>
4. <u>https://www.youtube.com/watch?v=TPowbUhf0</u> Q
5. https://www.youtube.com/watch?v=I 9Pwyxhe40
6. https://www.youtube.com/watch?v=WwQSfk6SSSo
13. Books Recommended
1. Park, J., John Park, A. S. D., & Mackay, S. (2003). Practical data acquisition for instrumentation and
control systems. Newnes.
2. 1995. Data acquisition databook. Santa Clara, CA: National Semiconductor Corporation.
3. Apse-Apsitis, P., 2014. Project Codename — "Sensor Data Remote Acquisition". Journal of Advances in
Computer Networks, 2(4), pp.237-242.
4. Böðvarsson, R., Rögnvaldsson, S. T., Slunga, R., & Kjartansson, E. (1999). The SIL data acquisition system—at present and beyond year 2000. <i>Physics of the Earth and Planetary Interiors</i> , 113(1-4), 89-
101.
5. VanRossum, G., & Drake, F. L. (2010). The python language reference. Amsterdam, Netherlands: Python
Software Foundation.
6. Provost, F., & Fawcett, T. (2013). Data Science for Business: What you need to know about data mining
and data-analytic thinking. " O'Reilly Media, Inc.".
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41



			and the second second	· /		
1. Name of the Depa	rtment: Forensic Scien	ce				
2. Course Name	Data Acquisition and (Cloud Forens	ics Lab	L	Τ	P
3. Course Code	17040620			0	0	4
						a service and a service of
4. Type of Course (u	se tick mark)	Core ()	DSE $()$	AEC ()	SEC ()	OE ()
5. Pre-requisite	10+2 with Science	6.	Even($$)	Odd()	Either	Every Sem (
(if any)	stream.	Frequenc			Sem ()	
		y (use tick				
		marks)				
. Total Number of I	Lectures, Tutorials, Pra	ctical				
ectures = 00		Tutorials =	00	Practical	- 52	
incluires – 00		i utoriais –		Practical	- 52	
. Course Descriptio	n:					
his is a Domain Sna	cialization Elective (DSI		is ideal f	the lase		· · · · · · · · · · · · · · · · · · ·
To learn the comp To learn the basics	ents to digital fundaments onents of data and progra s of data acquisition (DA oply related software a osses.	amming lang Q), principle	s, concepts			om sensors f
 Disciplinary know Critical thinking al Enhancement of A Becoming familiar 	ledge of identity of data, bout the types of techniq nalytical skills of data ac data amplification, sign with at least one softwa	ues and sense equisition in f al conditionin	or to measure forensic inving, and Ana	e a specific estigations log-to-Dig	c data. ital conversi	ion.
11. List of Experime		A				
ß	e to	XS-yC1	Ast	a b		the



- 1. To Study the methods of data storing in computer devices including SSD, Flash Drives, Magnetic Data Storage, Digital Audio etc.
- 2. To study various types of file formats like JPEG, GIF, SVG, PNG, TIF, HTML, PDF, DOCX, TXT, AVI, MP4, AVCHD etc.
- 3. To Study the case studies related to DAQs
- 4. To Study the case studies related to Cloud Forensics
- 5. To Study the methods of data collection from devices
- 6. Experimenting the converting/transforming of legacy data
- 7. To Learn about the LabVIEW basics for data acquisition
- 8. To Learn about different sensors and their significances.
- 9. To Learn about the working and function of Analog to Digital Converter
- 10. To Study and experiment signal conditioning.

12. Brief Description of self-learning / E-learning component

- 1. https://www.mccdaq.com/data-acquisition
- 2. https://www.omega.com/en-us/resources/daq-systems
- B. <u>https://www.electronics-notes.com/articles/test-methods/data-acquisition-daq/understanding-data-acquisition.php</u>
- 4. <u>https://www.youtube.com/watch?v=TPowbUhf0_Q</u>
- 5. https://www.youtube.com/watch?v=I_9Pwyxhe40
- 6. https://www.youtube.com/watch?v=WwQSfk6SSSo

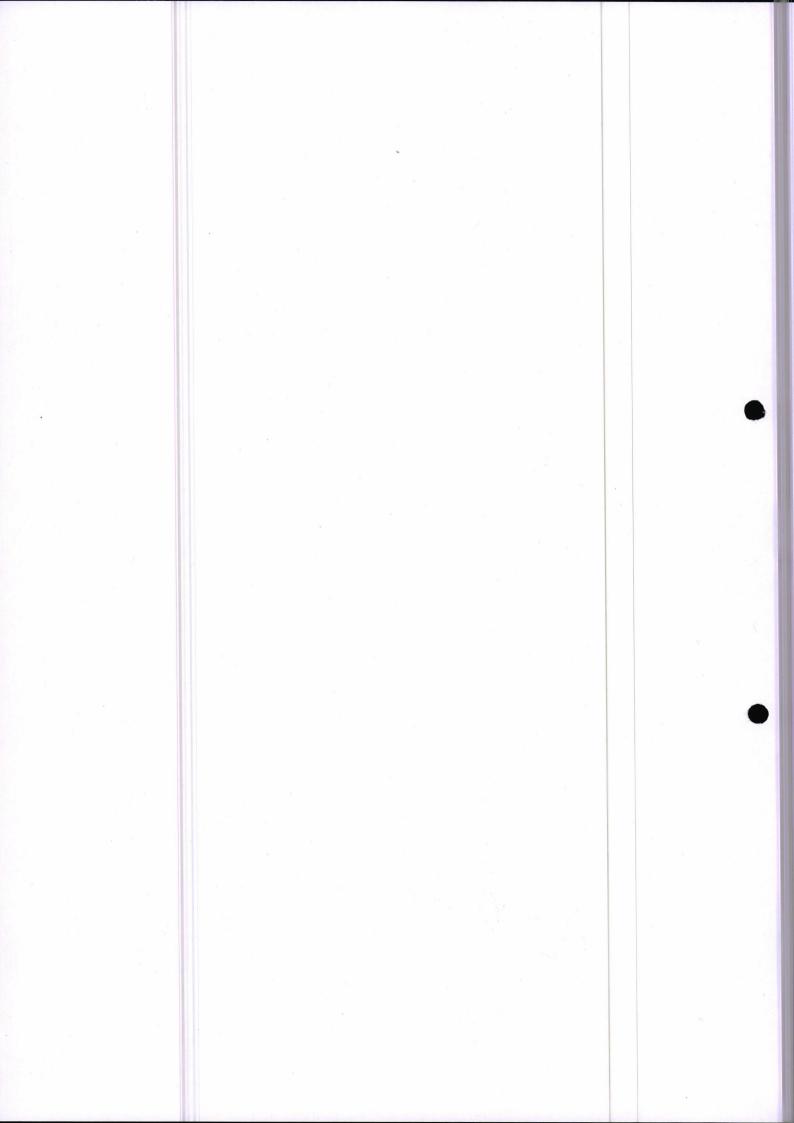
13. Books Recommended

- 1. Park, J., John Park, A. S. D., & Mackay, S. (2003). Practical data acquisition for instrumentation and control systems. Newnes.
- 2. 1995. Data acquisition databook. Santa Clara, CA: National Semiconductor Corporation.

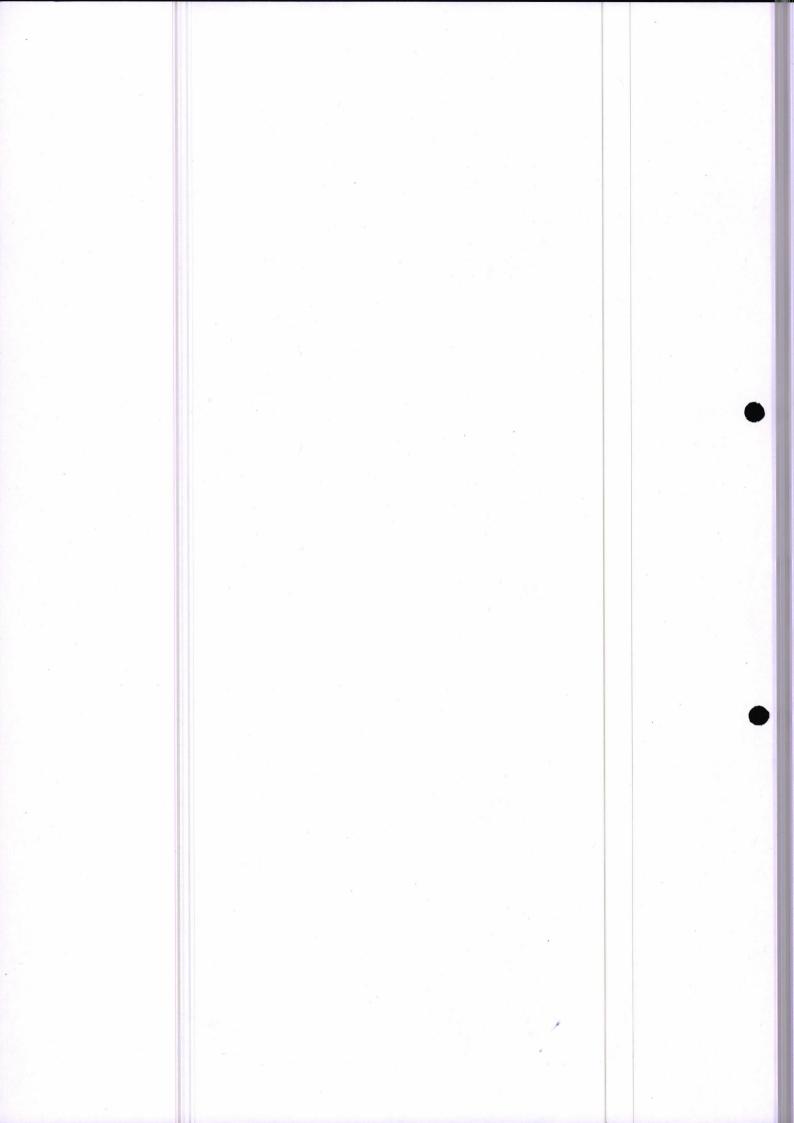
e l

- 3. Apse-Apsitis, P., 2014. Project Codename "Sensor Data Remote Acquisition". Journal of Advances in Computer Networks, 2(4), pp.237-242.
- 4. Böðvarsson, R., Rögnvaldsson, S. T., Slunga, R., & Kjartansson, E. (1999). The SIL data acquisition system—at present and beyond year 2000. Physics of the Earth and Planetary Interiors, 113(1-4), 89-101.
- 5. VanRossum, G., & Drake, F. L. (2010). The python language reference. Amsterdam, Netherlands: Python Software Foundation.
- 6. Provost, F., & Fawcett, T. (2013). Data Science for Business: What you need to know about data mining and data-analytic thinking. " O'Reilly Media, Inc,".

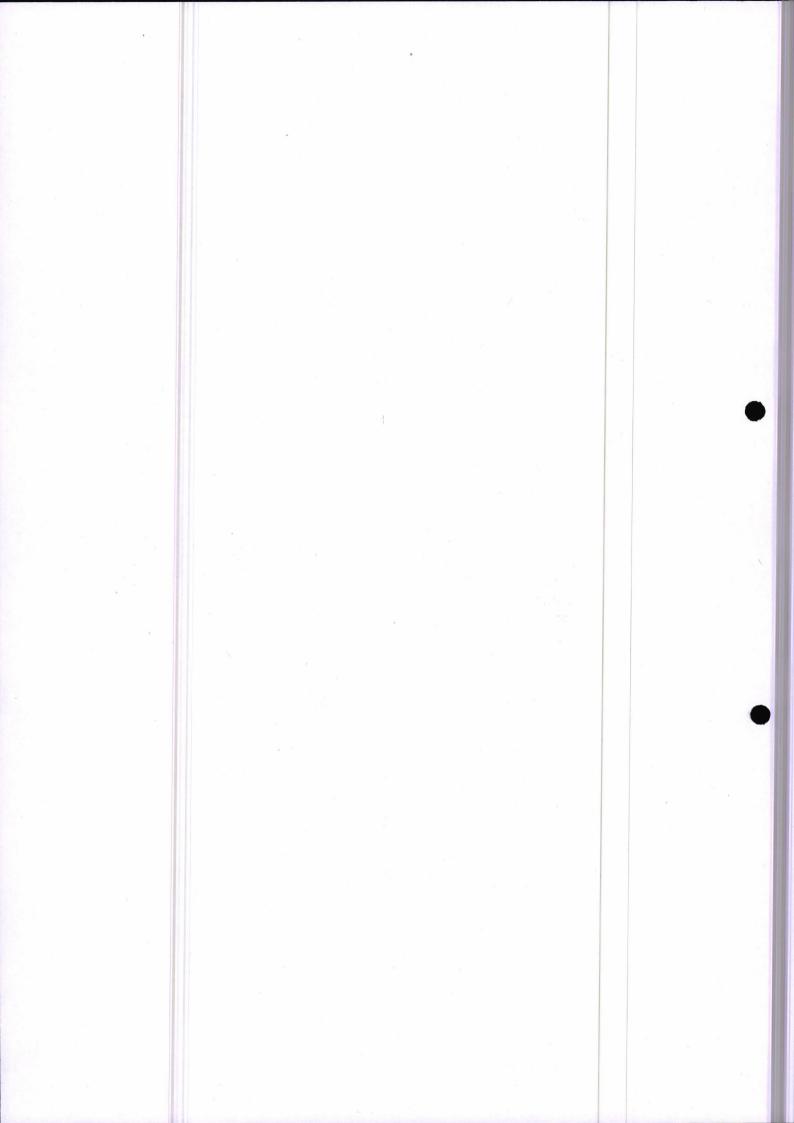
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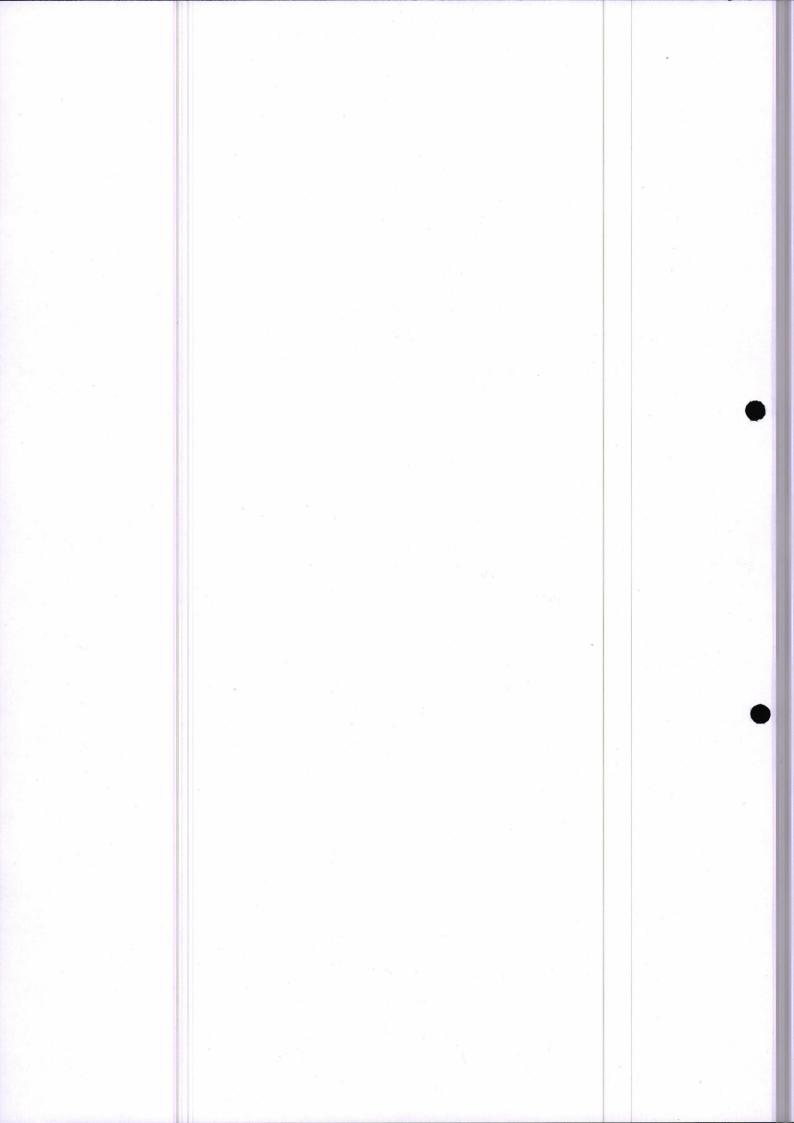
2. Course Name	artment: Forensic Scie Forensic Medicine			L	Τ	P
3. Course Code	17040701			4	0	0
4. Type of Course (Core ()	$DSE(\checkmark)$	AEC ()	SEC ()	OE ()
5. Pre-requisite	10+2 with Science	6.	Even ()	Odd(✓)	Either	Every Sem ()
(if any)	stream.	Frequency		5	Sem ()	
		(use tick				
		marks)				
	Lectures, Tutorials, P		0.0	D (* 1	0.0	
Lectures = 52		Tutorials =	00	Practical	= 00	
8. Course Descripti		1	1 41	· · · · · · · · · · · · · · · · · · ·	- C - 4	
	e concepts of forensic me		-			procedures, lega
ispects, post-morten	n changes, forensic entor	mology, injuri	es and aspn	yxial death	S.	
9. Course Objective	26					
	e fundamental, legal and		ts of forens	ic medicine	e to practice	etorensic
	ocedures in criminal just			0		
	inderstanding of the pro	cesses of post	t-mortem cl	nanges for	the crime s	scene assessmen
and evidence col		1	11.		4	
	e mechanism of wound	•	•	•	the age of t	the injury and i
	pects to analyse and inte				tout to our	race the opinion
	ne applications of forens	sic medicine n	i legal and	social con	lext to expl	less the opinior
effectively and c 10. Course Outcom						
	npletion of this course, t	he students wi	ll be able to):		
Upon successful con	npletion of this course, t				sic medicin	e to profession
Upon successful con . Develop understa	npletion of this course, t	al, legal and e	thical aspec	ts of foren	sic medicin	e to profession
Upon successful con Develop understa conduct and socia	npletion of this course, t anding of the fundamenta al issues in the form of re	al, legal and energy and	thical aspec and docume	ts of foren ntation.		
 Upon successful con Develop understa conduct and socia Develop the understa 	npletion of this course, t anding of the fundamenta al issues in the form of re erstanding of the process	al, legal and energy and	thical aspec and docume	ts of foren ntation.		
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 Upon successful con Develop understa conduct and socia Develop the unde observation skills Develop the unde injury and its med Develop the unde Initry and its med Develop the unde Initry and its med Develop the unde Initry and its med Initry and its and its med Initry and its a	npletion of this course, the anding of the fundamenta al issues in the form of re- cerstanding of the process berstanding of the mechar dico - legal aspects to an erstanding of the applicat det content Number of lectures 13 s and scope of forensic 1 d consent, ethical aspect Number of lectures 13 es-Algor Mortis, Livor M ting time since death using Number of lectures 13	al, legal and energy of the set of post-monitor of wound alyse and intertions of forens of foren	thical aspect and docume ortem chang l production rpret the pos- ic medicine unit: Intro al aspects a nedicine, au unit: Than Mortis, Rig ntomology.	ets of foren ntation. ges to enhan a & healing ssible cause in legal ar duction to nd sections itopsy proc atology	nce the crit a, determini e of injury. d social co Forensic M s, Types of edures. Adipocere,	ical thinking an ng the age of th ntext. Medicine witnesses; dyin
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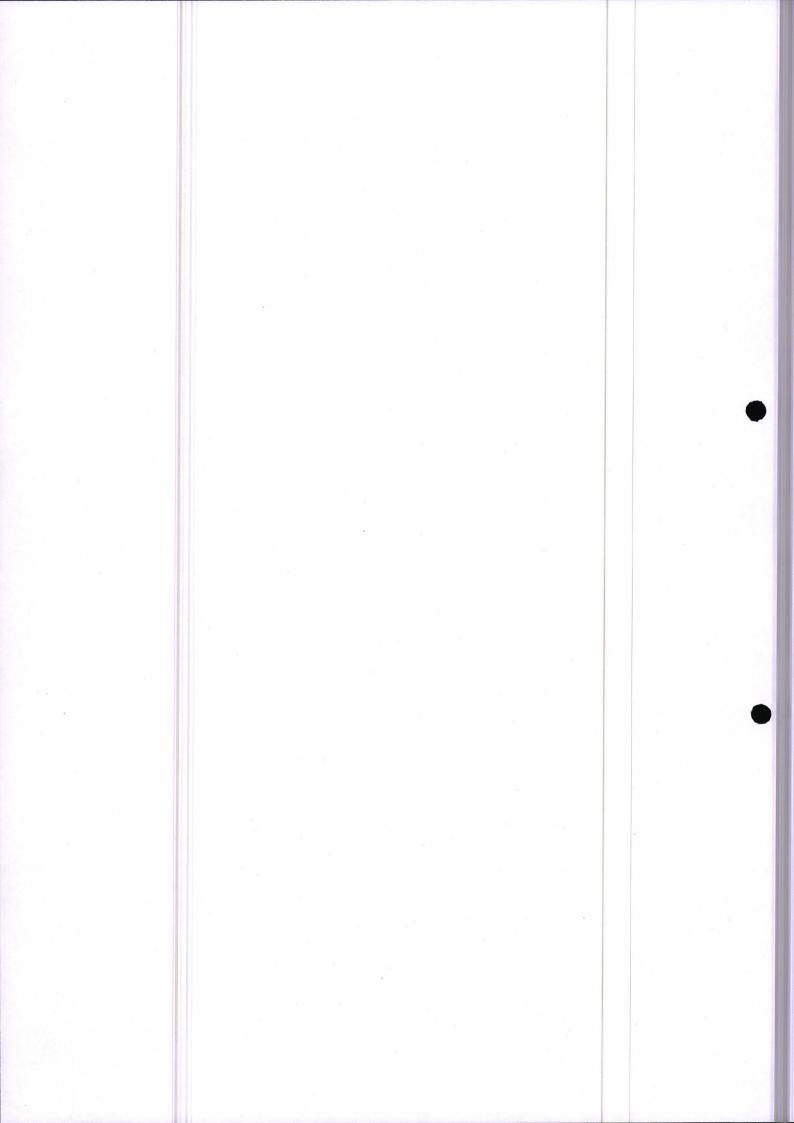
Unit -4	Number of lectures Title of the unit: Miscellaneous Injuries 13
Injuries due to h Hanging and Stra	neat, cold, chemicals and radiation and their medicolegal significance. Asphyxial Deaths
12. Brief Descri	ption of self-learning / E-learning component
1. https://notesm	ed.com/wp-content/uploads/2021/05/Textbook-of-Forensic-medicine-and-toxicology-5th-
edition-by-Kr	
2. https://www.y	outube.com/watch?v=DWhbUirPFjE
3. https://www.y	outube.com/watch?v=atjkuski6D4
4. https://www.p	dfdrive.com/the-essentials-of-forensic-medicine-and-toxicology-e176376887.html
	dfdrive.com/the-forensic-laboratory-handbook-procedures-and-practice-forensic-science-
	d185981349.html
13. Books Recor	nmended
1. J. Dix, Handb	ook for Death Scene Investigations, CRC Press, Boca Raton (1999).
	Franklin, C. A. (1988). Modi's Textbook of medical jurisprudence and toxicology. Bombay:
N.M. Tripathi	
	2003) Handbook of Forensic Medicine and Toxicology. 13th Edition, Paras Publication.
Hyderabad, 24	
	I. (2013) The Essentials of Forensic Medicine and Toxicology. 32nd Edition, Om Sai
Graphics, Hyc	
1	Touch a b offermation with the last to be the last
	Lexibook of forensic medicine and toxicology: Principles and practice.



2. Course Name	Forensic Medic	ine Lab		L	Т	Р		
3. Course Code	17040702			0	0	4		
4. Type of Course	(use tick mark)	Core ()	DSE (1)	AEC ()	SEC ()	OE ()		
5. Pre-requisite (if any)	10+2 with Science stream							
7. Total Number o	f Lectures, Tuto	rials, Practicals						
Lectures = 00		Tutorials = 00		Practical =	= 52			
8. Course Descript	ion:							
This course offers	the analytical	and pathological	concepts o	f forensic	medicine to	o develop th		
inderstanding of in		nortem changes, fo	rensic enton	nology, injur	ries and aspl	nyxial deaths		
: Course Objectiv								
		cal, analytical and			ensic medici	ine to praction		
		dures in criminal ju						
	the understanding and evidence colle	ng of the process	es of post-r	nortem cha	nges for the	e crime scer		
		e procedures for th	a determinat	ion the age	f the injum	and its madi		
		interpret the possil			or the injury	and its mean		
		ons of forensic me			ial context	to express th		
	ectively and clear			0				
0. Course Outcon	nes (COs):			n an				
real time for3. Understand theoretical, of4. Understand	rensic issues in leg the forensic and conceptual facts. report writing and social issues in th	and interpretation gal and social control d entomological a dying declaration he form of technica	ext. aspects to de considering l	etermine ca	use of deat	th to describ		
	1	. 1						
 To study the varie To design a proto To study the proto To understand the To analyze and p To analyze the sk To analyze the in To analyze and d To analyze and d 	ocol to write and c ocol or legal and e aspects of virtua reserve bite mark teletal remains for juries present on etermine the degr	locument dying de ethical clearance fo al autopsy. s. und on the crime so the body found on	claration. or the conduc cene. crime scene.		ppsy.	•		
 Modi, J. P., Bombay: N. Pillay, V.V. 	& Franklin, C. A. M. Tripathi.	cene Investigation (1988). Modi's Te of Forensic Medi 25.	extbook of m	edical jurisp	orudence and			
		Δ.						



1. Name of the Dena	rtment: Forensic Scienc	• e										
2. Course Name	Research Methodology a		L	T	Р							
3. Course Code	17040703		4	0	0							
4. Type of Course (u		Core ()	DSE (🗸)	AECC()	SEC	0						
5. Pre-requisite	10+2 with Science	6. Frequency	Even	Odd	Either	Every						
(if any)	stream	(use tick	Ô	✓)	Sem (Sem (
		marks)	∽)						
7. Total Number of	Lectures, Tutorials, Prac	ticals										
Lectu	Lectures = 52 Tutorials = 00 Practical = 00											
8. Course Description												
In this course, the com	ponents of research method	odology, research d	lesign, sampl	ing, hypoth	nesis formu	ulation,						
scientific research, stat	istics in scientific research	n and report writing	will be expla	ained.								
9. Course Objectives												
	nderstanding of research p			onducting a	nd analyzi	ng.						
	methods of sampling and I											
	concepts of descriptive sta			on of the d	ata.							
	capable of applying statisti	cs in academics and	d research.		Section 2							
10. Course Outcomes												
	letion of this course, the st											
	oly the knowledge of resear											
	ch theories, methodologie	s and processes bas	sed on their c	ritical think	king and pi	roblem						
solving skills.	1 1 1 1 1											
	be theoretical, conceptual	·										
11. Unit wise detailed	d interpret the data using s	statistical technique	·S .									
Unit-1	Number of lectures =	10 Title of th	ie unit: I	ntroductior	to Do	esearch						
Cint-1	rumber of icetures –	Methodology	ie unit. 1	nuoduction	n to Re	search						
Defining Research M	ethodology, need and sco		oncept of res	search desi	on indene	endent						
dependable & extraneo	us variables. Research hyp	othesis, methods of	f research: ca	se study me	ethod. desc	criptive						
& diagnostic studies, an	nalytic studies, survey etc.	Experimental desig	ns- CRD, RB	D, LSD &	Factorial de	esigns.						
Unit-2	Number of lectures =	13 Title of the	unit: Sampl	ing and C	omponents	s of a						
		Research repor	rt	U	1							
Sampling: Principles, r	nethods, types of sampling	g. Tools for data col	lection: Obse	ervation, int	terview sch	nedule,						
questionnaire, semantic	c differential. Components	of a Research repo	rt: Title, Auth	nors and add	dresses, At	ostract,						
Summary, Synopsis, k	ey words. Introduction, I	Review of Literatu	re: Research	Reading,	Critical Re	eading.						
	, References: Different typ											
Unit-3	Number of lectures =											
Introduction, Descript	ive Statistics: Frequency	distribution, class	s intervals,	graphical 1	presentatio	n: bar						
diagram, histogram, p	bie chart; Measures of C	Central Tendency;	measures of	f dispersio	n. Definit	ion of						
	f correlation, skewness an	d Kurtosis variance	e, Types of co	orrelation (I	Pearson r&	: Rho),						
correlation coefficient, Unit-4		15 Tide - Cd.	*** GL 1' 1'	T								
	Number of lectures = T				tuilant:	1						
	riable, discrete random v roperties. Hypothesis: Te											
test, chi-square test, F t		st of hypothesis, N	un nypotnesi	s, alternativ	ve nypotne	315. 1-						
	of self-learning / E-learning	ing component										
the set of												
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	An				- d							



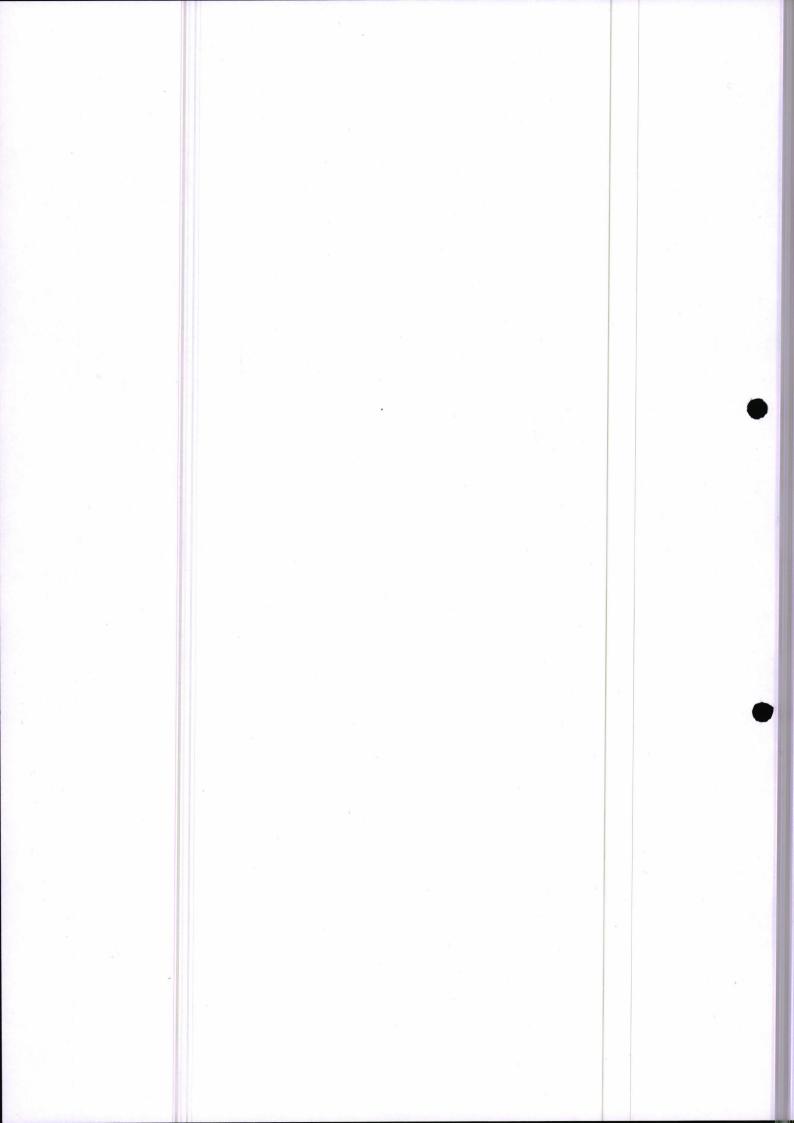
- 1. <u>https://www.youtube.com/watch?v=Pztlk97hf0o</u>
- 2. <u>https://www.youtube.com/watch?v=tBXznU_TPJo</u>
- 3. <u>https://www.youtube.com/watch?v=xy9_oWpWEGo</u>
- 4. <u>https://www.youtube.com/watch?v=dOew5987Gvg</u>
- 5. <u>https://www.youtube.com/watch?v=QfVx7AH8rck</u>
- 6. <u>https://www.youtube.com/watch?v=L4Z66nTag7w</u>

13. Books Recommended

- 1. KS Yogesh. Fundamental of Research Methodology and Statistics, 2006.
- 2. Broota, K.D., Experimental Design in Behavioural Research, Wiley eastern, New York, 1992.
- 3. Guilford, Statistics in Psychology and Education, McGraw hill, New York, 1986.
- Rajamanickam, M., Statistical Methods in Psychological and Educational Research, Concept Publishing Co. New Delhi, India, 1983.

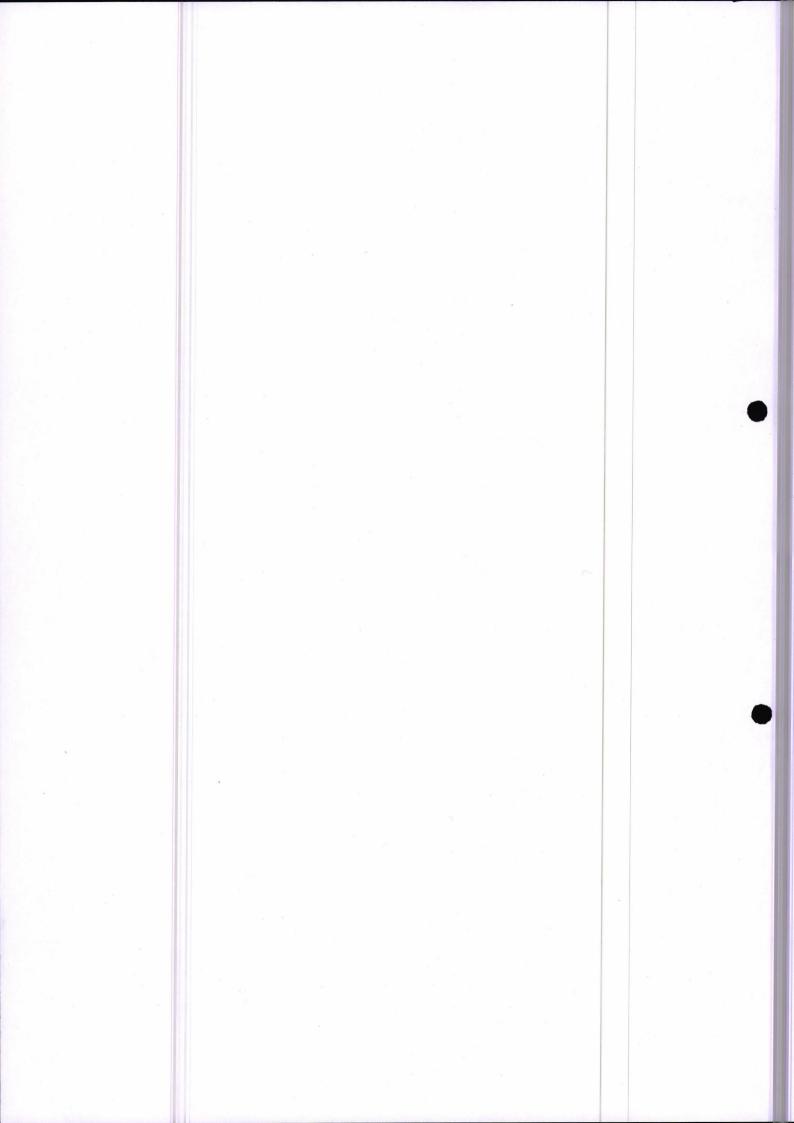
bla

5. S.P. Gupta. Statistical Methods 43rd Edition & Sultan Chand and Sons. New Delhi, India, 2014



1. Name of the De	partment: For	ensic Science				
2. Course Name	Research Me	thodology and	Statistics	L	Τ	P
	Lab					
3. Course Code				0	0	4
4. Type of Cour	se (use tick	Core ()	DSE	AEC ()	SEC ()	OE ()
mark)			(\checkmark)			
5. Pre-requisite	10+2 with	6.	Even ()	$\operatorname{Odd}(\checkmark)$	Either	Every Sem ()
(if any)	Science	Frequency			Sem ()	
	stream.	(use tick marks)				
7. Total Number of	of Lectures Ti		cale			
Lectures $= 00$	JI Lectures, I	Tutorials = 0		Practical =	52	
8. Course Descrip	tion	i utoriais o		Tactical	54	
		ply conceptual	knowledge	of research	methodolog	y and statistics for testing
hypothesis and form						s) and statistics for testing
		•				
 Course Objective 				2 2		
		he concepts of i			nd research	design.
		he details of dea				
-		of different me			c	. 1 1 .
		ge on hypothes	is testing ar	id analysis o	t experimer	ital data
10. Course Outcon						
Upon successful co						
						and their application
		ories, methodo	logies and	processes t	based on th	neir critical thinking and
problem sol 3. Analyze and		ratical concept	ual and own	animontal de	to	
		bret the data usi				
11. Unit wise deta		iet die data usi	ing statistice	a teeninques	•	
Practicals						
<u></u>	t diamete and		1. 4	1		
		continuous freq				en an an air an france
the data	a Dai Diagram	, mstogram, ric	e Diagraffi,	Frequency c	urve and Fr	requency polygon from
	e Mean Media	n, Mode of gro	uned and u	ngrouned da	ta	
		on and standard		- -		
						of significance of the
given data		0				
6. To definition	n of Null and A	Alternative Hyp	othesis and	l test it using	different te	ests of significance
7. To apply t t	est for single n	nean, t-test for i	ndependent	t samples, pa	ired t test o	n the given data
	test on the give					
		n the given data				
10. To analyse						
		PA and Vancou	aver format			
12. Books Recomm		IZ - 41				
1. A textbook of Bi	ostatistics, C.R	Kothari	9			
		~	Sell	n.A	a 11	
	1 1	4	A	10		
1	Jat	2h			V	

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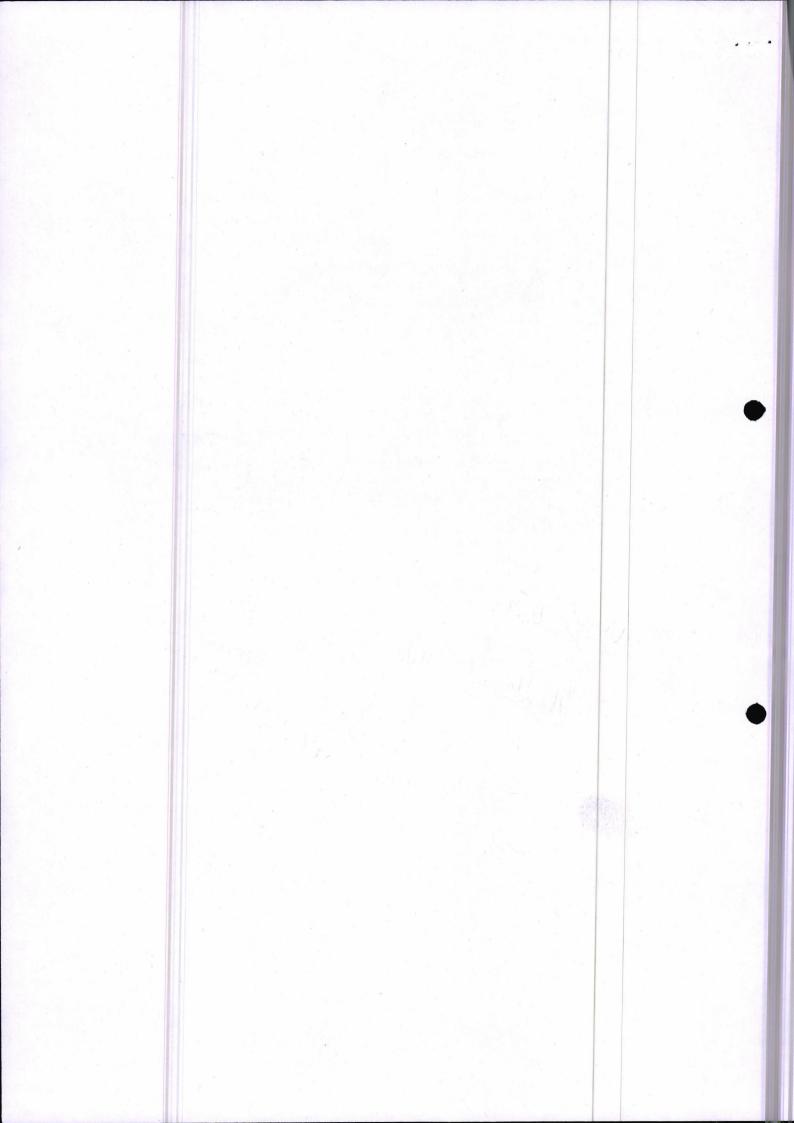


2. Course Name	Ecology &	Biodive	ersity	L	Т	Р	Credit
3. Course Code	17040705			4	0	0	4
. Type of Course	(use tick mark)	Cor	e ()	DSE (√)		SEC ()	1
5. Pre-requisite (if any)	10+2	requency (use tick marks)	Even ()	Odd (√)	Either Sem ()	Every Sem ()	
	f Lectures, Tutoria						
Lectures $= 52$		3	Futorials =	Nil	Practical =	• Nil	
3. Course Descript							
	eraction between bio						
cological factors &	the interaction, adap	ptation	and function	al adjustm	ent of organ	nisms to the	changes
hysical environmer	nt. This course will c	over de	tail understa	unding of pa	attern of bio	odiversity a	nd will he
and service the first state of the first	ategies for conservir		A State State State	and the second second			
		ig closy		louiversity.			
Course Objective							
The objectives of thi	s course are:						
1. To introduce	the students with fa	actors re	esponsible f	or evolution	n of life		
1							
end an anna anna an All Churcherter	nd biodiversity patte				-	and the second s	
3. To know abo	out various conventi	ons and	l treaties for	biodiversit	y conserva	tion.	
4. To know abo	out the working of o	rganiza	tions for wil	dlife conse	rvation.		
0. Course Outcom	es (COs):						
Jpon successful con	pletion of this cour	se, the s	student will	be able.			
		,	,				
1. To understar	nd principles of ecol	ogy, po	pulation and	l resource o	lynamics		
2. To understar	nd the relationship o	f living	organisms v	with their e	nvironmen	t.	
3. To know the	effect of human civ	vilizatio	n and indust	rialization	on biodive	reity	
				1	the second states		
	out the sustainable d	evelopi	nent for pro	tection of e	cosystem a	ind conserv	ing
biodiversity.							
	detailed content						
Jnit-1 N	lumber of lectures	= 13	Ecology &	: Ecosyster	n		
cosystem: Definition	on, structure and f	function	. Evolution	arv ecolos	v. Earth's	major eco	osystems
errestrial and aquat	ic ecosystems, Bio	sphere,	Ecosystem	productivi	ity, Adapta	ations to th	e physica
nvironment, Ecosys	tem stability, Ecolog	gical Su	accession, Ed	cades, Ecot	ypes, Ecot	one.	
nit – 2 N	umber of lectures	= 13	Population	Ecology			
opulation: Interaction	an distribution and	-			···		
adala a C l C l - C - l 1'	on, distribution, and on, Concept of carr		bacity, Conc	ept of Hab	itat and Eco	ological Nic	curves an che, Lotka
	12- 1	100					
A veril	got hur	vb)	,	· · ·	1.		~
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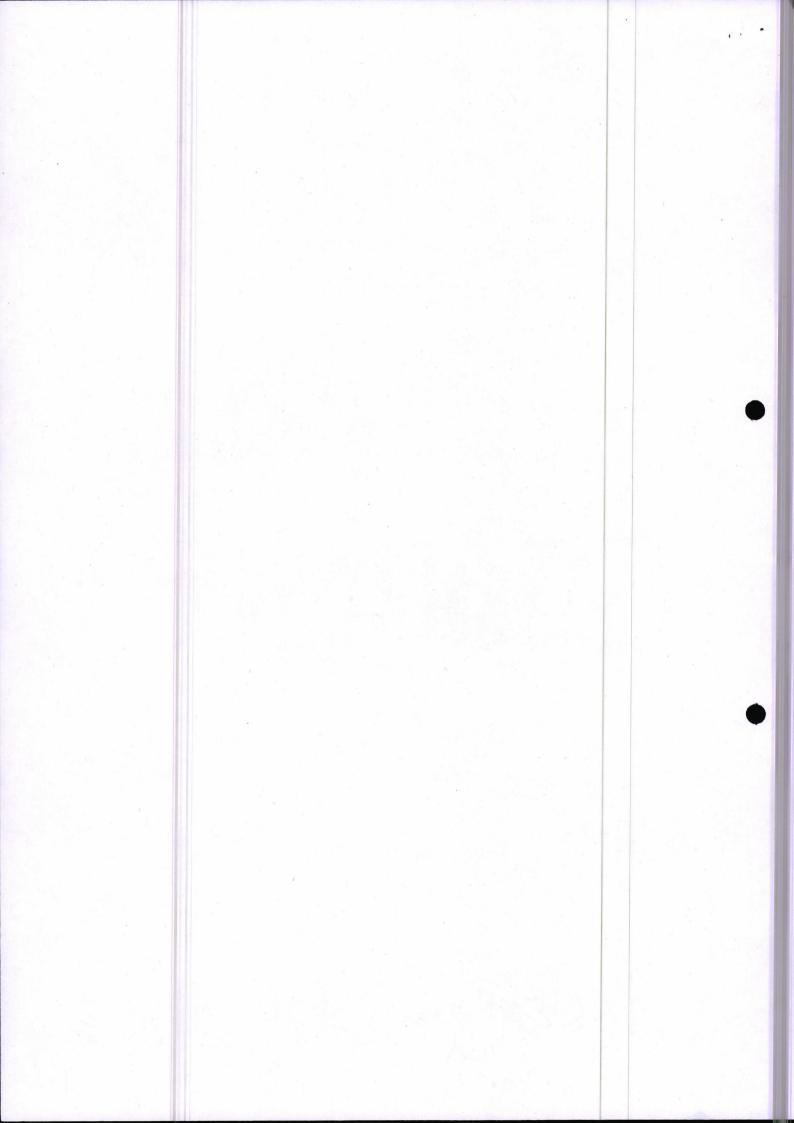


Unit	-3	Number of lectures = 13	Biodiversity
Histo	rical and geo	graphical pattern of biodivers	ity; Types of biodiversity, levels, and gradients of
Biodi	versity, Theo	ries of biological classification	on, IUCN categories, red data book, green data book,
Biodi	versity in the	welfare of mankind.	
Unit		Number of lectures = 13	Conservation and Sustaining Strategies
Intern	ational convo	entions, treaties and protocols	for Biodiversity Conservation, Human impacts: threats
to eco	system and b	biodiversity, Role of WWF, W	CU, CITES, TRAFFIC, Concept of sustainable
	opment		1996년 1월 1996년 1월 1996년 1997년 1998년 1997년 199 1997년 1월 1997년 1 1997년 1997년 199
		tion of self learning / E-learn	
1.		v.conserve-energy-future.com	
2.		v.youtube.com/watch?v=pv-W	
3.			lecture-note-on-biodiversity-conservation
4.		.ac.in/courses/102104068/2	
5.	https://www	easybiologyclass.com/biodiv	versity-introduction-definition-classification-importance
		nt-of-biodiversity	
	ooks Recom		
1.	Fundamenta	als of Ecology by Eugene P. C	Ddum, Gary W. Barrett - Publisher : Cengage(5
	edition) ISE	N: 9780534420666	
2.	Ecology and	l Field Biology by R.L Smith	, Publisher: Benjamin Cummings ISBN-10 :
-1.0	0321042905		
3.	Principles o	f Environmental Science by W	Villiam Cunningham and Mary Cunningham
	Publisher: N	IcGraw-Hill Education; 8th e	dition ISBN-10 : 0078036070
4.	Global Biod	iversity: Volume 2: Selected	Countries in Europe by Apple Academic Press ISBN:
	9781771887	175	
5.	Ecology of I	Natural Resources by Francoi	s Ramade Publisher : John Wiley & Sons Inc ISBN
	9780471901	044	

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Course Name	Ecology an Lab	cology and Biodiversity- L T P					Credits
. Course Code	17040706		0 0		4	2	
. Type of Course	e (use tick	Core ()	DSE (✓)	SEC ()			
nark) . Pre- requisite (if any)	10+2	6. Frequency (use tick marks)	Even ()	Odd (✓)	Eith er Sem ()	Ever y Sem ()	
. Total Number ectures = Nil	of Lectures	, Tutorials, Practi					
		Tutorials = Nil	Pra	ctical = 52			
Course Descrip							
		students to the bas					
s course will als	o give a pla	tform to develop d	ifferent meth	ods to stud	y popula	tion size of	
		ith biodiversity sur			o r op und	01.01.00	
		an oroarversity sui	vey and cons	servation.			
Course Object		-					
e objectives of th							
To study plant c	community e	ecology ecosystem.					
To learn concep	ts of biodive	ersity pattern and v	alue of biodi	versity			
			Contraction of the second second second second	the second s			
		study population si	and the second second second second				
To know about	the working	of organizations for	or wildlife co	nservation			
. Course Outcon	nes (COs):						
the second s		his course, the stud	lent will be a	bla			
				and the second		10.000	
		kills like species id					
To explain the	distribution	and abundance of c	different plan	it species in	n any regi	on.	
		/interactions amon			12. 4		
				-			
		vildlife and ground	problems in	the protect	tion of lo	cal and	
national wildlif	е.						
. List of Experim	ents						
		ze of quadrat for co	mmunity stu	ldv			
		nd density of specie		17-12 C			
service and the service service and the service of			and the second	area.			
estimation of chlo	rophyll cont	tent in plant sample	es.				
Estimation of orga	nic carbon c	content in plants.					
	ein content i	in plants					
Estimation of Prot							
Estimation of Prot							
To study the biodi	versity prese						



- 7. To determine diversity indices in a given area
- 8. Study of major National parks, Biosphere reserves and Wildlife Sanctuaries and their Flora and Fauna.
- 9. Biodiversity Photography: Field work
- 10. Case study of the reintroduction of wild animals.
 - 12. Books Recommended
 - 1. Fundamentals of Ecology by Eugene P. Odum, Gary W. Barrett Publisher : Cengage (5 edition), ISBN: 9780534420666
 - Ecology and Field Biology by R.L Smith , Publisher: Benjamin Cummings ISBN-10 : 0321042905
 - Global Biodiversity: Volume 2: Selected Countries in Europe by Apple Academic Press, ISBN: 9781771887175
 - Ecology of Natural Resources by Francois Ramade Publisher : John Wiley & Sons Inc ISBN 9780471901044

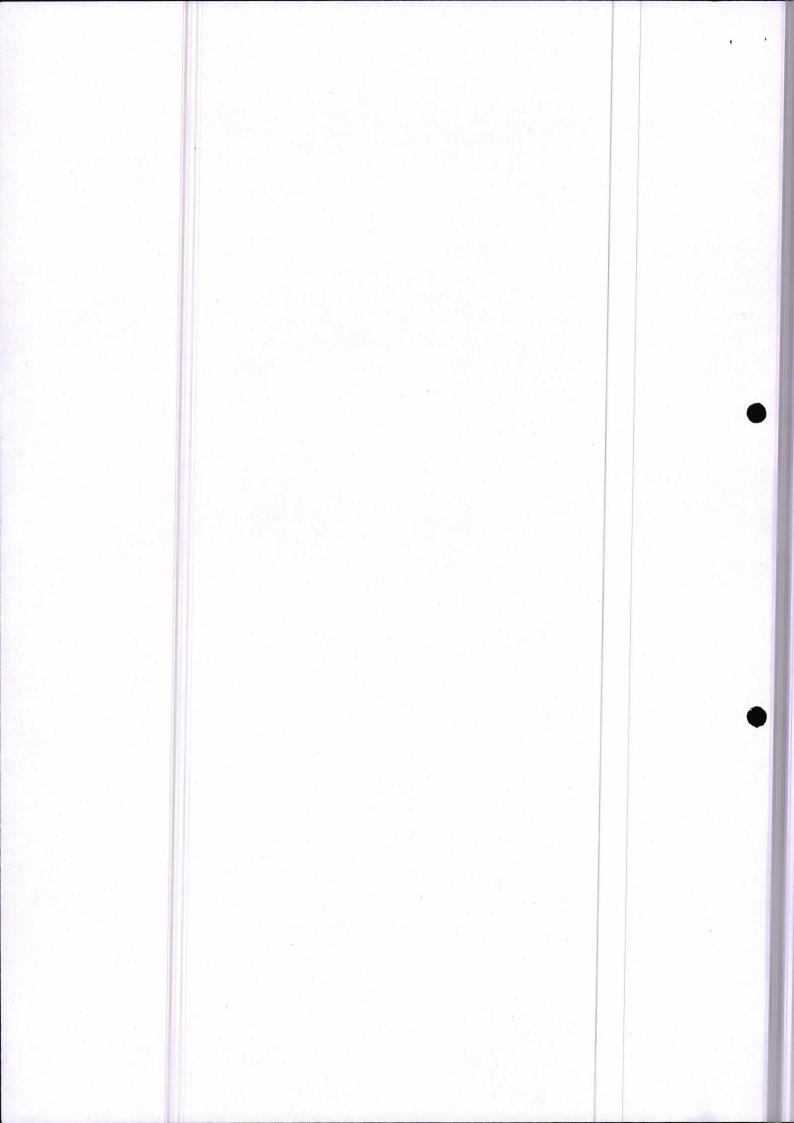
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1. Name of th	e Denart	ment: Environmer	tal Science					
2. Course Na		Air and Noise Pol			L	Т	Р	Credit
3. Course Co		17040707			4	0	0	4
4. Type of Co	ourse (use	tick mark)	Core ()		DSE (v	$\overline{\mathbf{O}}$	SEC ()	•
5. Pre-requis		10+2	6. Freque	ency	Even (Either	Every
(if any)			(use tick r			(1)	Sem ()	Sem ()
7. Total Num	ber of Le	ctures, Tutorials, P			veeks of	one semest		
Lectures = 52			Tutorials = N			tical = Nil		
8. Course De								
Atmospheric 1	Pollution	and control is base	ed on the inform	nation a	about di	fferent proc	esses in A	tmospheri
chemistry in r	elation to	gases and particula	ate matter. This	course	will cov	ver basic co	ncepts in a	tmospheri
chemistry and	noise pol	lution. It also cover	s the detail know	vledge r	elated to	effect of h	uman activ	ities on th
natural atmosp	oheric pro	perties. Also the he	alth effects and	control	measure	es for air an	nd noise po	ollution ar
studied.								
9. Course Ob								
1. To describe	the struct	ure, photochemistry	and chemical pr	ocesses	existing	in the atmos	sphere.	
2. To understa	nd the con	ncepts and unifying	features of atmos	pheric o	hemistry	4.		
		s, effects and control		e e se evene	NOTE: CONTRACT		nts.	
4. To understa	nd the sou	arces and harmful im	pacts of noise p	ollution	on huma	ins and other	r organisms	5.
10. Course Or								
Upon successf	ul comple	tion of this course th	e student will be	able			ili. Fr	
		and unifying featur			stry.			
2. To understa	nd the int	erconnections betwe	en different laye	rs of atn	nosphere	and their in	nportance.	
3. To understa	nd the eff	ect of human activiti	es on the natural	atmosp	here.			
4. To understa	nd estima	tion methods of diffe	erent air pollutar	ts.				
5. To know ab	out the di	fferent sound indices	and control mea	sures fo	or noise p	pollution.		
11. Unit wise			je v v v v v v v v v v v v v v v v v v v					
Unit-1	Number	of lectures = 13		Air Po	ollution	and its effec	ets	
Air pollution: c	compositio	on and structure of at	mosphere, globa	l implic	ations of	air pollutio	n. Sources	and
Classification of	of air pollu	itants, Indoor air pol	lution, Effects o	f air poll	lutants of	n humans, ai	nimals, pro	perty and
plants, Case St	uales.							
		of lectures = 13		Dispe	rsion of	pollutants		
Meteorological	aspects o	f air pollution disper	sion; lapse rate,	inversio	n and sta	bility, wind	velocity a	nd
turbulence, plu	me behavi	iour, dispersion of ai	r pollutants, the	Gaussia	n Plume	Model, stac	k height an	d
dispersion.								
Unit – 3	Number	of lectures = 13		Air po	llution o	control devi	ices	
Ambient air qu	ality stand	lards, Ambient air sa	impling: gaseous	and par	ticulate	pollutants, s	tack sampli	ing, IOT
based monitorin	ng system	s, Control devices fo	or particulate and	gaseou	s contam	inants: grav	itational se	ttling
Cotolutio	one separa	ators, wet scrubbers,	tabric filters (Ba	g-house	e filter), l	Electrostatic	precipitato	ors (ESP),
Catalytic conve	and the second se	of losture 12						
		of lectures = 13	1	Noise	pollutio	<u>1</u>		
point and line s	ources and s	pecification of sound	; sound power, s	sound in	tensity a	nd sound pr	essure leve	ls; plane,
		ultiple sources; effection itoring procedure. N		inans, r	ioise star	idards and li	mit values;	; noise
nstrumentation		noring procedure. N	orse marces.					
		-1.	1					

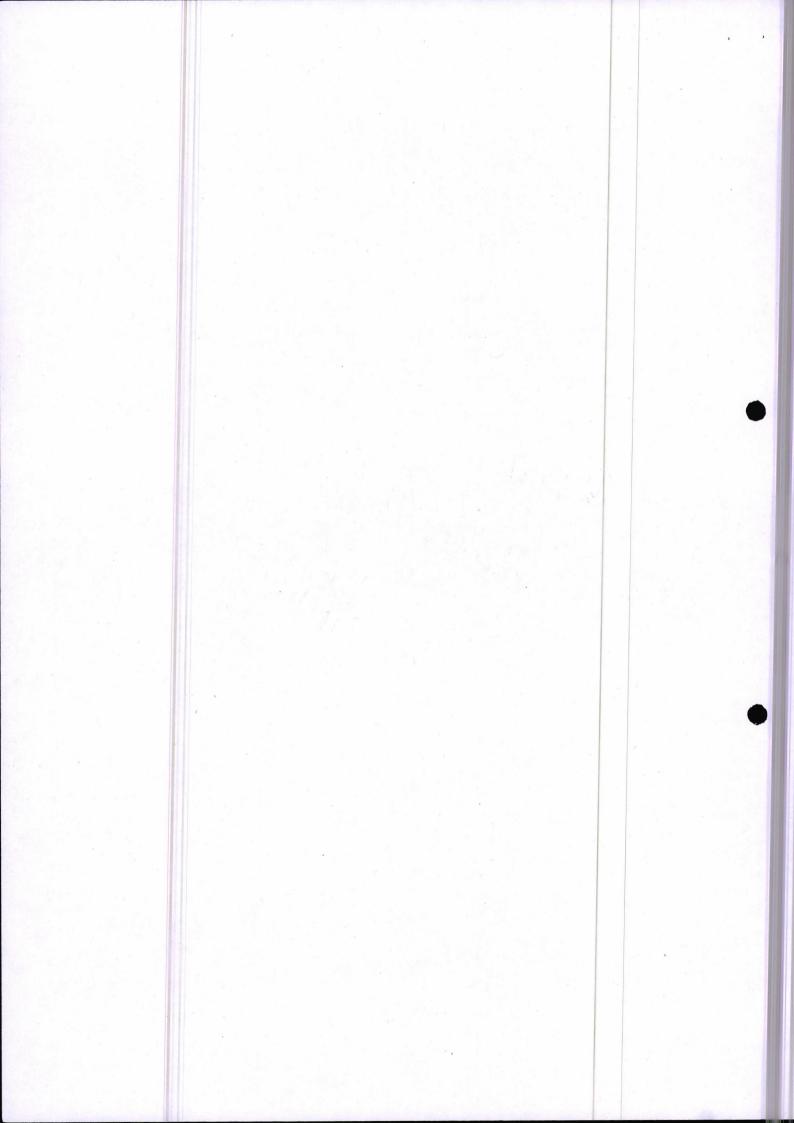
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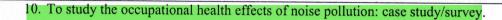
	1.	http://acmg.seas.harvard.edu/people/faculty/djj/book/powerpoints/index.html					
	2.	https://ocw.mit.edu/courses/civil-and-environmental-engineering/1-84j-atmospheric-chemistry-fall-					
	20	13/lecture-notes/					
3.	Bo	ooks Recommended					
	1.	Industrial Noise Control: Fundamentals And Applications, 2Nd Edition by H. Bell; Douglas H. Bell					
		Publisher : T&F India, ISBN : 9781138583191					
	2.	Introduction to Environmental Engineering and Science (3rd Edition) by Gilbert M. Masters; Wende					
		P. Ela Publication : Pearson, ISBN : 9780131481930					
	3.	Introduction to Atmospheric Chemistry, Daniel J. Jacob, Publisher: Cambridge University Press,					
	1	ISBN-13: 978-0521778008					
	4.	Air Pollution: Its Origin and Control.3rd Edition, Kenneth Wark and C F Warner, Publisher : Pearso					
	-	ISBN-13 : 978-0673994165					
	5.	Air Pollution Control Engineering. Ist Edition by Rao and Rao, Publisher : McGraw Hill Education					
	6.	ISBN-13 : 978-0074518717					

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2.Course Name	Air and Noise P	onution-Lao		L	Τ	Р	Credits	
3.Course Code	17040708			0	0	4	2	
.Type of Course (Core ()	Core ()		DSE (✓)		SEC ()		
5.Pre-requisite (if any)	10+2	6.Frequency (use marks)	tick	Even ()	Odd (✔)	Either Sem ()	Every Sem	
	Lectures, Tutorials							
ectures = Nil		Tutorials = Nil		Practica	al = 52			
B.Course Description	on: oduce the students to	understand the pri	nainla	and monthin	~ of 1:55-		1.0	
the state of the s	nt. To know propertie					100 C 100		
	insport of pollutants i		ants and	u men sam	pring met	nodology	. To understan	
	insport of portutants i	in atmosphere.						
Course Objective								
	e concentration of Par	rticulata Mattar in (
	with NO ₂ measureme		<u>111</u> .					
1	with SO ₂ measureme	-						
0	iar with stack monito	•••			- 1			
	nd procedure of noise	e measurement usir	ig Nois	e level met	er.			
0.Course Outcome				_				
	npletion of this cours		be able	to:				
 Use different instruments for air quality assessment. Analyze various parameters for air quality assessment like concentration of NO₂, SO₂, CO, PM etc. 								
			nt like (concentrati	on of NC	D_2, SO_2, CO_2	O, PM etc.	
() () () () () () () () () () () () () (sources of different ty	•						
	the working and appl	ications of Sound I	evel me	eter.				
1. List of Experime 1. Determination	on of respirable suspe	ended particulate m	atter (R	RSPM) in a	mbient a	ir quality.		
	on of NO_2 concentrat	and the second				1 1		
3. Determinatio	on of SO ₂ concentrati	on in ambient air q	uality.					
4. Study of amb	pient noise level.	1997 - 1997 -						
5. Stack monito	oring and analysis of	different pollutants	s.					
6. Determination	on of Carbon Monoxi	de.						
7. To compare	the pollution level of	different location.						
8. Indoor air quality monitoring of campus,								
9. To study the	occupational health	effects of air pollut	ion: cas	se study/su	rvey.			
V	occupational health of	buy fruget))Y	. }	0/17	or	2Dun 1.6.2.V	





12.Books Recommended

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- Air pollution by Rao & Rao, Publisher : McGraw Hill Education 1. ISBN-13:978-0074518717
- 2. National Ambient Air Quality Series: Central Pollution Control Board

ional Ambre. Webster Webster

P.D. C. WW



 4. Type of Course (mark) 5. Pre-requisite (if any) 7. Total Number of Lectures = 52 8. Course Descripti This is a Domain Spematerials, structures to person(s) and propengineering includin 9. Course Objectiv The objectives of thi 	10+2 with Science stream Lectures, Tuto on ecialization Elect and components	6. Frequ (use ti rials, Pra Tuto	ck marks)	4 DSE Even (✓)	0 (*) Odd ()	55 C) C () Every Sem (
mark) 5. Pre-requisite (if any) 7. Total Number of Lectures = 52 8. Course Descripti This is a Domain Spenaterials, structures to person(s) and propengineering includin 9. Course Objectiv The objectives of thi	10+2 with Science stream Lectures, Tuto on ecialization Elect and components	6. Frequ (use ti rials, Pra Tuto	iency ck marks) ctical	Even		Either	Every
5. Pre-requisite (if any) 7. Total Number of Lectures = 52 8. Course Descripti This is a Domain Spe materials, structures to person(s) and prop engineering includin 9. Course Objectiv The objectives of thi	Science stream Lectures, Tuto on ecialization Elect and components	(use ti rials, Pra Tuto	ck marks) ctical		Odd ()	Either	Every
(if any) 7. Total Number of Lectures = 52 8. Course Descripti This is a Domain Spe materials, structures to person(s) and prop engineering includin 9. Course Objectiv The objectives of thi	Science stream Lectures, Tuto on ecialization Elect and components	(use ti rials, Pra Tuto	ck marks) ctical		Odd ()		-
7. Total Number of Lectures = 52 8. Course Descripti This is a Domain Spe materials, structures to person(s) and prop engineering includin 9. Course Objectiv The objectives of thi	Lectures, Tuto on ecialization Elect and components	rials, Pra Tuto	ctical	(✔)		Sem ()	Sem (
Lectures = 52 8. Course Descripti This is a Domain Spe materials, structures to person(s) and prop engineering includin 9. Course Objectiv The objectives of thi	on ecialization Elect and components	Tuto					
Lectures = 52 8. Course Descripti This is a Domain Spe materials, structures to person(s) and prop engineering includin 9. Course Objectiv The objectives of thi 1. To introduce the s	ecialization Elect and components		rials = 00				
This is a Domain Spe materials, structures to person(s) and prop engineering includin 9. Course Objectiv The objectives of thi	ecialization Elect and components	tive (DSF			Practica	al = 00	
materials, structures to person(s) and prop engineering includin 9. Course Objectiv The objectives of thi	and components	tive (DSF					
to person(s) and prop engineering includin 9. Course Objectiv The objectives of thi) course and d	eals with th	ie investig	ation of p	product
engineering includin 9. Course Objectiv The objectives of thi	erty This course						
9. Course Objectiv The objectives of thi				nowledge of	of basic co	ncepts of	forensi
The objectives of thi		tem failui	re.				
L. To introduce the							
		*	-	ineering.			
2. To learn the proce				0.11			
3. To learn about the					0.11		
4. To learn about the		is of diffe	rent material o	causing sys	tem failur	e.	
10. Course Outcom	es (CUs)						
. Become familiar o material.		analytica	l techniques u	sed in foren	sic exami	nation of	buildin
11. Unit wise detaile					1		
Unit-1 Nu	mber of lecture		itle of the un ngineering	it: Introdu	ction to f	orensic	
Introduction to Fore	ensic Engineerin	g; Fire in	nvestigation;	Industrial a	accidents;	Traffic	accider
reconstruction; Trans	sportation disaste	er investig	gation; Civil en	ngineering	investigat	ion; Inves	stigation
report. Structural fail	lures, static loads	s, dynamie	c loads, causes	s of buildin	g collapse	;	
Unit - 2 Nu	mber of lecture	s = T	itle of the un	it: Cement	Class ar	nd nainte	•
13	in or recture.		the of the un	a cement	, Grass al	la paints	
Building Materials:	Types of cemen	t and the	ir composition	n, other mi	xing mate	erial Ans	lysis c
Bitumen and road ma							
Glass: Collection, pa							chanica
it and refractive ind	lex measurement	ts. Analys	sis by spectros	scopic meth	ods. Frac	ture analy	ysis an
lirection of impact.					aleria de la Surga		
mould of impubl.	mbor of losture	- 12 T		4. C . 1	6-1		
	mber of lectures		itie of the un	it: Soll and	TODELO		
Unit – 3 Nu			origon of asil			aunitar t	C
Unit – 3 Nu Soil: Importance, loc		and comp	parison of soil			aminatior	n of soil
						aminatior	ı of soil



Paints: Types of paint and their composition, collection, packaging and preservation. Analysis by destructive and non-destructive methods. Importance of paint evidence in hit and run cases, Forensic examination of paints Interpretation of paint evidence.

Fiber analysis: Forensic significance, Classification, Fabric characteristics, Microscopy characteristic, Birefringence, Fluorescence Microscopy, Colors in textile, Color Assessment, Chemical properties

Unit – 4 Number of lectures = 13 Title of the unit: Tool Marks and Miscellaneous Clue Materials

Tool Marks: Types of tool marks, Class characteristics and individual characteristics, Lifting of tool marks, Examination, Miscellaneous Clue Materials- Examination of strings/ropes, Wires/cables, Seals, Counterfeit coins

12. Brief Description of self-learning / E-learning component

- 1. https://www.youtube.com/watch?v=I0drf6ZGxXQ
- 2. <u>https://www.youtube.com/watch?v=_6WWV500q9E</u>
- 3. https://www.youtube.com/watch?v=I0drf6ZGxXQ
- 4. https://www.youtube.com/watch?v=-TAGgskF-JE
- 5. https://www.youtube.com/watch?v=lZSbczLjoc8
- 6. https://www.youtube.com/watch?v=vIKzKuy8Duo
- 7. https://www.youtube.com/watch?v=AQqo_gpx65c
- 8. https://www.youtube.com/watch?v=6mrZhEDyys4

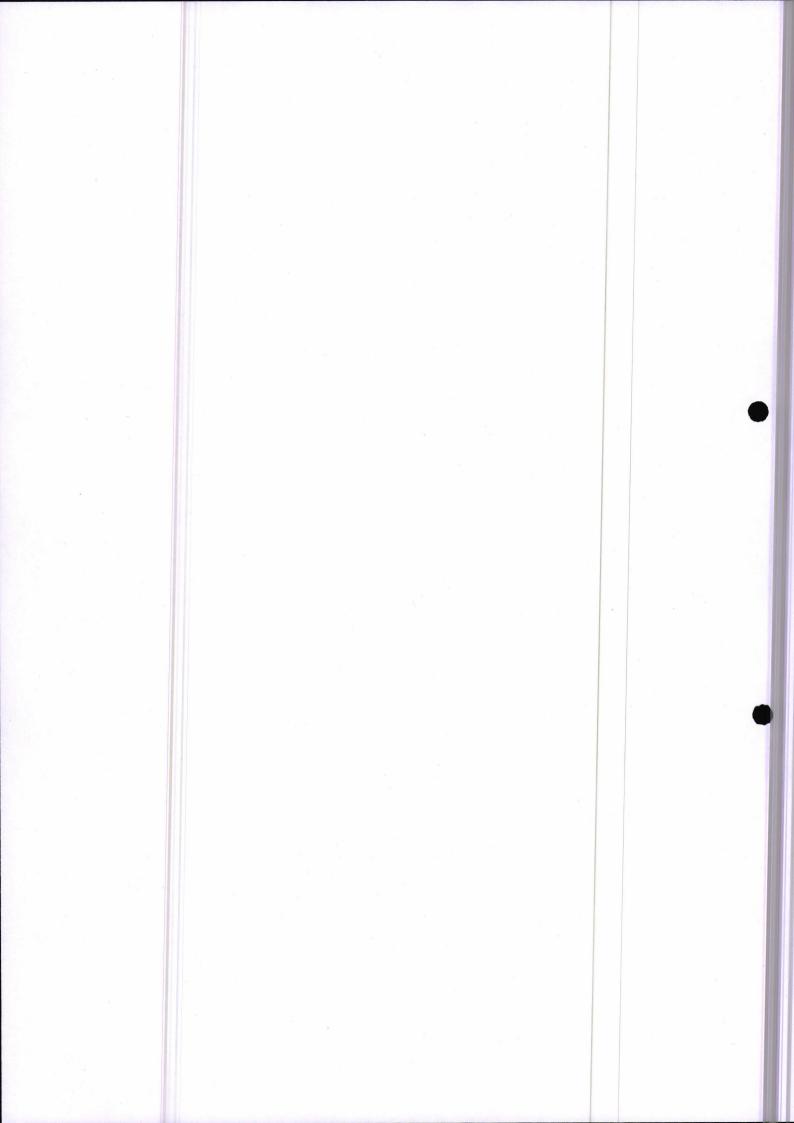
13. Books Recommended

- 1. B.S.Neale, Forensic engineering: the investigation of failures. Thomas Telford, London, 2001.
- 2. Forensic Paint Analysis and Comparison Guidelines
- Robertson J, Roux C, Wiggin GK, Grieve M. Forensic Examination of Fibre s(2nd Edn). CRC Press, 1999.
- 4. Noon RK. Forensic Engineering Investigation (2nd Edn). CRC Press, 2000.
- 5. Van Kirk DJ. Vehicular Accident investigation and reconstruction. CRC Press, 2000.
- JA Siegel, P.J Saukko. Encyclopedia of Forensic Sciences (Vol. I, II and III). Academic Press, 2000.
- 7. Sharma BR. Forensic Science in Criminal Investigation and Trials. Central Law Agency, Allahabad, 1974.
- 8. Saferstein R. Criminalistics, Prentice Hall Inc. USA, 2000.

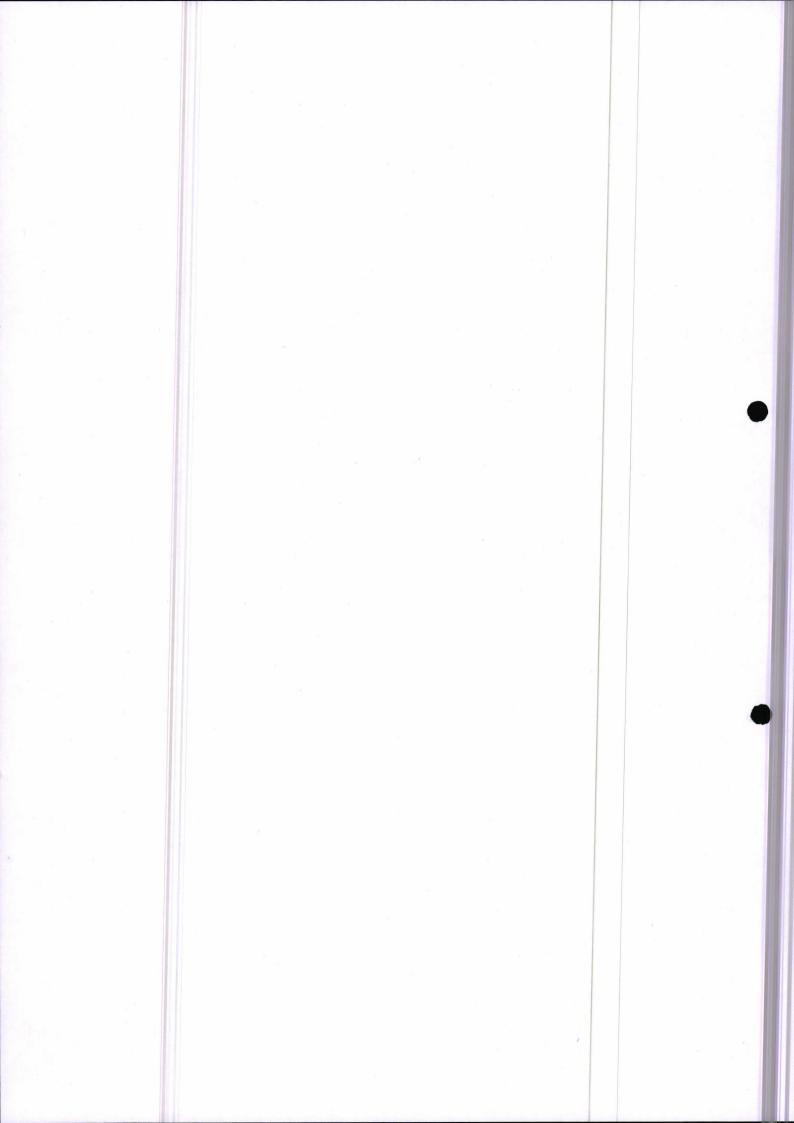
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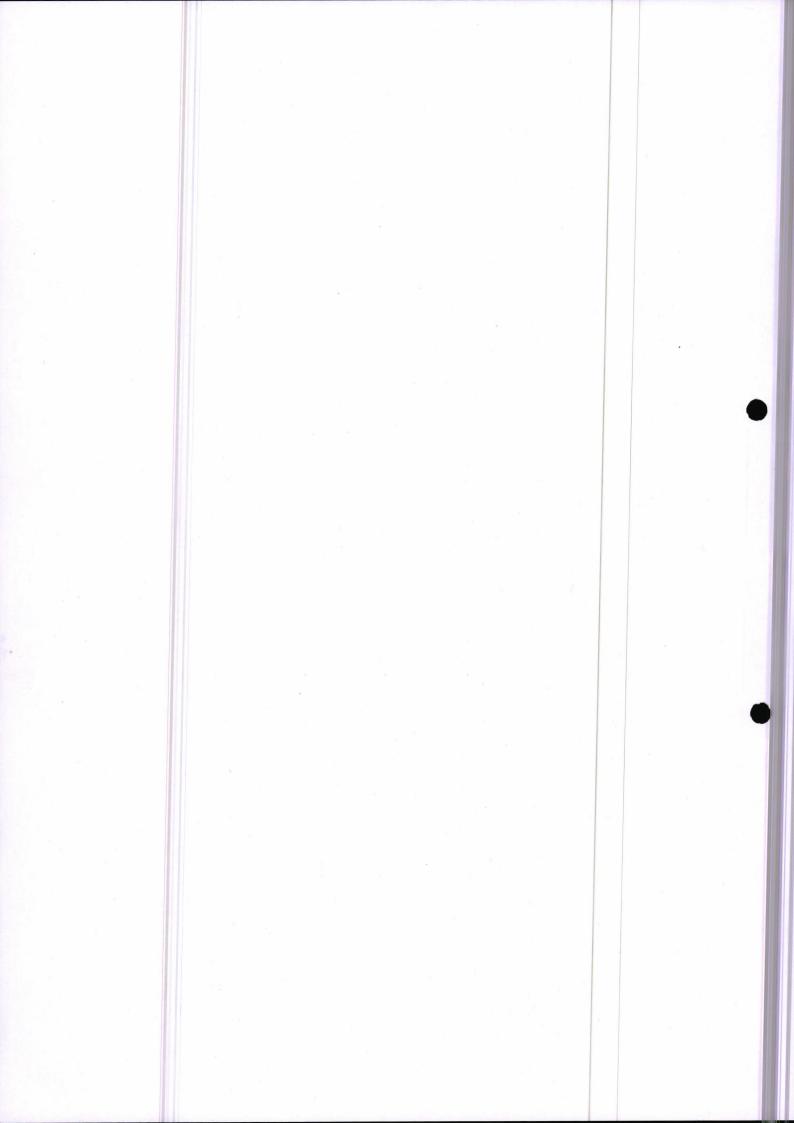
1. Name of the Depa	rtment: Forer	isic Science			1-1-1-1-1	
2. Course Name	Forensic Eng	ineering Lab	L	Т	F	
3. Course Code	17040802		0	0	4	
4. Type of Course (u	se tick mark)	Core ()	DSE	Č (✔)	SEC	C()
5. Pre-requisite	10+2 with	6. Frequency	Even	Odd	Either	Every
(if any)	Science	(use tick marks)	(*)	0	Sem ()	Sem ()
	stream					
7. Total Number of I	Lectures, Tuto	rials, Practicals				
Lectures = 00		Tutorials =	00	Pra	actical = 5	2
8. Course Descriptio					1	
This is a Domain Spe						
different types of phy	vsical evidences	s occur at the scene o	f building c	ollapse, acc	cidental sit	tes etc.
9. Course Objective					and the second	
The objectives of thi						
I. To introduce stud	ents about the	importance of physic	al evidences	s in system	failure and	alysis.
		n of paint chips, soil	, fabric and	l Glass.		
3. To develop the ar			3. 			
4. To develop critica		at the different situat	ion which ca	an lead to a	system fai	lure.
10. Course Outcom	es (COs)					
 Critical thinking a Develop analytica List of experimen To conduct Visua To Determination To conduct Comp To conduct Macro To study Compar To study of differ To conduct Analy To study Compar To study Compar To compare paint 	size and recons and problem so al and scientific ats l examination of of soil density parison of differ oscopic and mini- ison of glass us rent types of fal- vis of fabric ma- ison of Bangle samples by ph- samples by thi	struct the events surre- lving during investig reasoning related to of soil sample by density gradient rent Soil samples croscopic comparison ing density gradient bric material aterial pieces. ysical matching meth in layer chromatogra	ounding a cr ation of real different ph tube techniq n of paint ch method.	rime scene I life cases. hysical evide jues. hips.		
12. Books Recommen		g material by setting	unie (cemen	n)		
	ind SFSL Manu	uals.				
	0	Joge L A	pla	¥	Blz	-



2. Course Name	epartment: Forensi	c Science				
		tory Techniques and	L	Т	P	
	Quality Manageme		~	-	-	
3. Course Code	17040803		4	0	0	
4. Type of Course		Core ()	DSE (SEC	
5. Pre-requisite		. Frequency	Even	Odd	Either	Every
(if any)	Science	(use tick marks)	(1)	0	Sem ()	Sem (
N N	of Lectures, Tutoria	1				
Lectures = 52		Tutorials = 0	0	Pr	actical =	00
8. Course Descrip	otion					1
This course provid	les students the know	vledge of different La	boratory A	nalytical	Technique	es alon
with their forensi	c applications. Intro	oduction to Quality	Managemer	nt, Quali	ty Audit	will be
explained. Organi	zations involved in so	etting guidelines and	maintainir	ng qualit	y system	will be
described.						
9. Course Object						
The objectives of t			<u>)</u>			
		ced Analytical Techni			X	
2. Describe conce	pts of different molec	cular biological techni	ques.			
	amentals of Quality n		DI	ar	0.100	~
		s like NABL, ILAC, A	APLAC, AS	CLD, IS	O-IEC, BI	S.
10. Course Outco	mes (COs)					
techniques.	<mark>s in</mark> quality managing		ne unit: Ad			
Cint-1	Number of fecture	Techniqu		vanceu 2	Anaryuca	
Principle, Instrume	entation and Applicat	tions of Raman Spectr		clear Ma	onetic Res	
(NMR). X-ray Di	ffraction (XRD) and	Y Pay Eluorascono	e (YPF) I	Fourier to	Shothe ree	
spectrometry (FT	ID) a decente and in	I A-Nay Fluorescene	U TANTI. I		ansiorm	sonance
	ik) advantages, in	strumentation qualita	ative and	quantitat	ive appli	sonance
		strumentation qualita	ative and	quantitat	ive appli	sonance
interpretation of In	frared (IR) spectra.	strumentation qualita	ative and	quantitat	ive appli	sonance
	frared (IR) spectra.	strumentation qualita	ntive and the unit: Mo	quantitat	ive appli	sonance
interpretation of In Unit - 2 ELISA, Principle,	Ifrared (IR) spectra. Number of lecture Instrumentation and	strumentation qualitates = 13 Title of the Technique Applications: Agarce	ntive and ne unit: Mo n <mark>es</mark> ose Gel Ele	quantitat decular ctrophore	ive appli Biology esis, SDS-	sonance infrarec cations -PAGE
interpretation of In Unit - 2 ELISA, Principle,	Ifrared (IR) spectra. Number of lecture Instrumentation and	strumentation qualitates = 13 Title of the Technique	ntive and ne unit: Mo n <mark>es</mark> ose Gel Ele	quantitat decular ctrophore	ive appli Biology esis, SDS-	sonance infrarec cations -PAGE
interpretation of In Unit - 2 ELISA, Principle,	Ifrared (IR) spectra. Number of lecture Instrumentation and	strumentation qualita es = 13 Title of th Techniqu Applications: Agarc Principle, steps, types,	ntive and ne unit: Mo n <mark>es</mark> ose Gel Ele	quantitat blecular ctrophore ts and ap	ive appli Biology esis, SDS- plication c	sonance infrarec cations -PAGE of PCR.
interpretation of In Unit - 2 ELISA, Principle, Pulse field gel elec Unit – 3	Ifrared (IR) spectra. Number of lecture Instrumentation and trophoresis system. I Number of lecture	strumentationqualitationes = 13Title of the	ative and ne unit: Mo es ose Gel Ele componen the unit: nent System	quantitat Decular ctrophore ts and ap Introduc n	ive appli Biology esis, SDS- plication c ction to (sonance infrarec cations -PAGE of PCR. Quality
interpretation of In Unit - 2 ELISA, Principle, Pulse field gel elec Unit – 3 Quality – vision,	Ifrared (IR) spectra. Number of lecture Instrumentation and trophoresis system. I Number of lecture mission and polic	strumentationqualita $es = 13$ Title of the TechniqueI Applications:AgarePrinciple, steps, types, $es = 13$ Title of ManagenCy statements,Definit	ative and ne unit: Mo les ose Gel Ele componen the unit: nent System ition of A	quantitat olecular ctrophore ts and ap Introduc n	ive appli Biology esis, SDS- plication c ction to (sonance infrarec cations -PAGE of PCR. Quality efits of
interpretation of In Unit - 2 ELISA, Principle, Pulse field gel elec Unit – 3 Quality – vision, Accreditation, Qua	Instrumentation and Instrumentation and trophoresis system. I Number of lecture mission and polic ality Management System	strumentationqualitationes = 13Title of the TechniqueI Applications:AgarePrinciple, steps, types, es = 13Title of Managency statements,Definit Stem, Quality Manual,	ative and ne unit: Mo nes Se Gel Ele componen the unit: nent System ition of A Quality Ma	quantitat olecular ctrophore ts and ap Introduc n accreditat anager. Q	ive appli Biology esis, SDS- plication c ction to (ion, Beno puality Ass	sonance infrarec cations -PAGE of PCR. Quality efits of
interpretation of In Unit - 2 ELISA, Principle, Pulse field gel elec Unit – 3 Quality – vision, Accreditation, Qua Quality Control, Q	Ifrared (IR) spectra. Number of lecture Instrumentation and trophoresis system. I Number of lecture mission and polic lity Management System uality Planning. Qua	strumentationqualitation $es = 13$ Title of the the techniqueI Applications:AgarePrinciple, steps, types, $es = 13$ Title of Managen ey statements,Define ey statements,Define $estem$,Quality $quality$ Manual, $quality$ Manual,	ative and ne unit: Mo es ose Gel Ele componen the unit: nent System ition of A Quality Ma dits. Qualit	quantitat olecular ctrophore ts and ap Introduc n ccreditat anager. Q y Contro	ive appli Biology esis, SDS- plication c ction to o ion, Beno uality Ass l tools.	onance infrarec cations -PAGE of PCR. Quality efits of surance
interpretation of In Unit - 2 ELISA, Principle, Pulse field gel elec Unit – 3 Quality – vision, Accreditation, Qua	Instrumentation and Instrumentation and trophoresis system. I Number of lecture mission and polic ality Management System	strumentationqualita $es = 13$ Title of the TechniqueI Applications:AgarePrinciple, steps, types, es = 13Title of Managency statements,Definitioncy statements,Definitionstem,QualityManual, lityAudit/Internalcs = 13Title of the Title of the	ative and ne unit: Mo nes Se Gel Ele componen the unit: nent System ition of A Quality Ma	quantitat olecular ctrophore ts and ap Introduce accreditat anager. Q y Contro ganizatio	ive appli Biology esis, SDS- plication of ction to of ction, Beno uality Ass l tools.	sonance infrarec cations -PAGE of PCR. Quality efits of surance



National Accreditation Board for Testing and Calibration Laboratories (NABL), International Laboratory Accreditation Co-operation (ILAC), Asia Pacific Laboratory Accreditation Cooperation (APLAC). American Society of Crime Laboratory Directors (ASCLD), International Organization for Standardization (ISO), Bureau of Indian Standards (BIS). 12. Brief Description of self-learning / E-learning component https://www.youtube.com/watch?v=g5voLRKi4fA 1. https://www.youtube.com/watch?v=PSJTBwh35jk 2. 3. https://www.voutube.com/watch?v=FX-NiPVsYPM https://www.youtube.com/watch?v=45hiG3OwTNO 4. 5. https://www.youtube.com/watch?v=AWDWamCH ls https://www.youtube.com/watch?v=wXvET5RTMxQ 6. https://www.youtube.com/watch?v=DVv2F0KiD8w 7. 8. https://www.youtube.com/watch?v=76rLqg9BJro https://www.youtube.com/watch?v=1hGiptAhSr4 9. 10. https://www.youtube.com/watch?v=d5O1Iu1ZINA 11. https://www.youtube.com/watch?v=PnHaca 08vY https://www.youtube.com/watch?v=g-OwCpoGXxg 12. https://www.youtube.com/watch?v=b5ZrDy015wk 13. https://www.studocu.com/en-au/document/griffith-university/forensic-lab-accred-qual-14. sys/lecture-notes/forensic-lab-accred-and-qual-sys-exam-notes/1293870/view 15. https://www.in.gov/isp/labs/files/Lab QA Manual 03-16-16.pdf 16. https://epic.org/state-policy/foia/dna-software/18-Quality-Manual-071615-Rev-16.pdf 13. Books Recommended James W. Robinson, Eileen Skelly Frame, George M. Frame II. Undergraduate Instrumental 1. Analysis (7th Edn). CRC Press, 2014. 2. Settle FA. Handbook of Instrumental Techniques for Analytical Chemistry, Prentice Hall, 1997. 3. Sue Jickells, Adam Negrusz. Clarke's Analytical Forensic Toxicology. Pharmaceutical Press, 2008.Robinson JW. Atomic Spectroscopy (2nd Edn). Marcel Dekkar, Inc, New York, 1996. 4. Willard HH, Lynne L. Merrett, J. Dean, A. Frank, A. Settle. Instrumental Methods of Analysis (7th Edn). CBS pub. & Distributors, New Delhi, 1988. Khandpur RS. Handbook of Analytical Instruments, Tata McGraw Hill Pub. Co. New Delhi, 6. 2004. Thomson KC, Renolds RJ. Atomic Absorption Fluorescence & Flame Emission 7. Spectroscopy: A Practical Approach (2nd Edn). Charles Griffith & Company, New South Wales, 1978. 8. Hobart Willard. Instrumental Methods of Analysis. Wadsworth Publishing Company, 1988. 9. Douglas Skoog, James Holler, Stanley Crouch. Principles of Instrumental Analysis (7th Edn). Cengage Learning, 2017. 10. Skoog & Lerry, Instrumental Methods of Analysis, Saunders College Publications, New York 11. G.R Chatwal, S.K Anand. Instrumental Methods of Chemical Analysis. Himalaya Publ. House, 2004. 12. G.R Chatwal. Analytical Spectroscopy (2nd Edition). Himalaya Publishing House, 2002. 13. NABL - Guide for Internal audit and Management Review for Laboratories. 14. Manuals of DFSS. Joll Z Jose Asta A-je



1. Name of the Dep	partment: Foren	sic Science				
2. Course Name	Analytical Labor	ratory Techniques and	L	Т	P	
	Quality Manager	ment Lab			1. Q. 1. 1. 1.	1.2
3. Course Code	17040804		0	0	4	
4. Type of Course	(use tick mark)	Core()	DSE	(√)	SEC	
5. Pre-requisite	10+2 with	6. Frequency	Even	Odd	Either	Every
(if any)	Science	(use tick marks)	(✔)	0	Sem()	Sem ()
7. Total Number o	of Lectures, Tuto	rials, Practical				
Lectures = 00		Tutorials = 0	0	Pı	ractical =	52
8. Course Descript	tion:		e			
In this course, theor	retical basics of ar	nalytical techniques will	be explained	ed. Introc	luction to	forensic
quality managemen	it system, quality a	audit will also be explai	ned. Organi	izations i	nvolved in	n setting
guidelines and main	ntaining quality sy	stem will be described.				
9. Course Objecti						
The objectives of the					а. "	
		anced Analytical Techn	*			
		lecular biological techni	iques.			
	nentals of Quality			1 A.		
		ons like NABL, ILAC, A	APLAC, AS	CLD, IS	O-IEC and	d BIS.
10. Course Outcon	nes (COs)					
 Enhance their an Develop and m analytical techni 	alytical skills for aintain research ques.	fferent categories of ana the different categories ethics in interpretation	of analytica n of results	l Instrun		lifferen
		lity management of sys	tems.			1
11. List of Experim 1. To perform drug			· · · · · · · · · · · · · · · · · · ·			
2. To compare pair	t complex by CC.					
		nd testing by HPLC				
4. To carry out san						
5. To perform Aga						
	· · · · · · · · · · · · · · · · · · ·	procedure of National	Accreditati	on Boar	d for Test	ing and
Calibration Labo		r or runoitur		en Doul	. 101 1031	ing and
		nt parameters of certific	ation of Inte	ernationa	1 Organiza	tion for
Standardization					Build	
		of Crime Laboratory D	irectors (AS	SCLD).		
13. Books Recomn	· · · · · · · · · · · · · · · · · · ·					
. NABL - Guide f	or Internal audit a	nd Management Review	v for Labora	atories.		
. Manuals of DFS		0				
		Sigle Asta	V	~ . 1	- Bly	

Ab



. Course Name	Soil and wate	ronmental Science r pollution	L	T	Р	Credits
	17040805		4	0	0	4
. Type of Course nark)	(use tick	Core()	DSE(✓)		SEC()	
. Pre-requisite	10+2	6.Frequency	Even	Odd	Either	Every
if any)		(use tick	(🖌)	0	Sem ()	Sem()
. Total Number o	of Lectures, Tu	marks) itorials, Practical (assuming 15 w	eeks of o	ne semester`	
ectures=52		Tutorials=Nil	Prac	tical=Nil	ine gennester)	
Course Descrip The course mainly		l and water pollutio	n problems and	loolution	This course	a the terrine
like soil profile, pl	ysic-chemical	properties of soil,	soil pollution a	and reme	diation of co	ontaminated
soil. It also includes	s solid waste ar	nd its management u	using different m	nethods su	ich sanitary	and-filling,
recycling, compost	ing, vermin-co	omposting, incinera	tion, energy re	covery fi	rom organic	waste etc.
This also aware	students a	bout the variou	s factors aff	ecting	the physic	ochemical
properties of wa water.	ter and diffe	rent treatment m	ethods for in	dustrial	and domes	stic waste
9. Course Object	tives:		<u></u>		· · · · · · · · · · · · · · · · · · ·	
he objectives of this						
To learn the basic	c concepts of s	oil formation and in	nportant physic-	chemical	properties	
		asures for soil pollu		enemedi	properties.	
		e different methods				
				lanageme	nt.	
		ater quality criteria	and standard.			
To describe the w		itment processes.				
. Course Outcom					2	
		course, the student				1.
To know about th	e various phys	icochemical proper	ties of soil and r	najor sou	rces of soil p	ollution.
To understand an	d apply the cor	ncept of solid waste	management to	minimize	e the adverse	effects.
To be familiar wi	th relationships	s between inapprop	riate waste mana	igement p	practices and	their impac
on water and soil.		. ،				
To develop an int	egrated perspe	ctive on water resou	irces and water	uality m	anagement	
		te water treatment n		quanty m	anagement.	
11.Unitwisedetaile			iethodologies.			4
nit-1 Numbe	r of lectures=		Soil formati	on and n	roperties	1
oil Formation: Proc	ess, Factors, S	oil profile, Types o	f soils, Physicoc	chemical	and biologic:	al propertie
vironment, remed	n: Types and	major sources of	f soil pollutant	s, effect	s of soil po	ollutants or
	r of lectures=]		Solid waste	and its n	anagement	
olid waste: Source	s, classificatio	n & composition.	Solid Waste N	lanageme	ent-Sanitary	land-filling
ecycling, Composition	ting, Vermi-co	omposting, Inciner	ation, Energy	recovery	from orga	anic waste
asification, Liquifi	cation and Py	iorysis, waste mir	milization techr	lologies,	HazardousW	asteand its
	2/	gt a	10			
	Jet Toble	<i>o</i> v	all		1.1.1	
(110	} }	Toja			w
	.)	1	011-1	W2	on F	Div
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Management

Unit-3 Number of lectures=13 Water properties and resources

Physico-chemical and biological properties of fresh water, Hydrological cycle, Solubility of gases in water, carbonate system, Water management strategies: Rain water harvesting, Recharging of ground water, Water quality standards.

Unit-4 Number of lectures=13 Water pollution

Water pollution: Sources, causes and effects, Characteristics of domestic, industrial and agricultural waste water, Marine pollution, Thermal pollution. Primary, secondary, tertiary & advance treatment of waste water, Wastewater treatment technologies, Bioremediation, Water borne diseases.

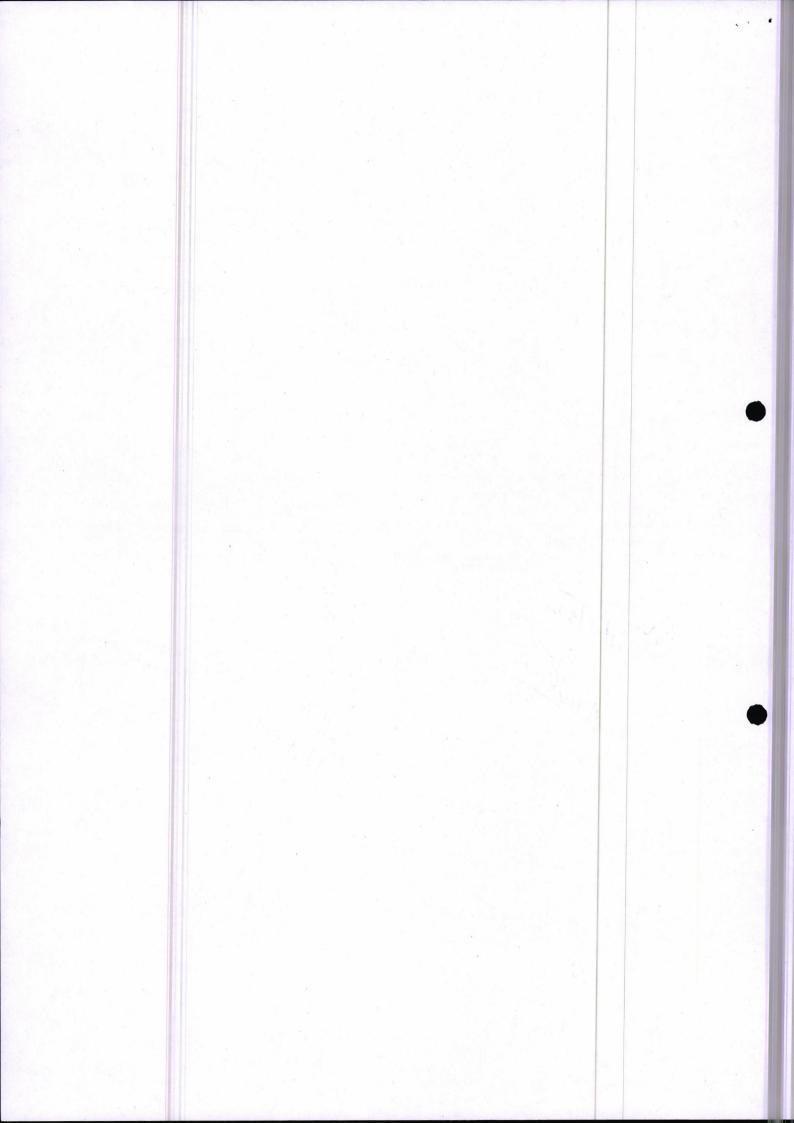
- 12. Brief Description of self learning/E-learning component
- 1. https://www.environmentalpollutioncenters.org/soil
- 2. https://www.springer.com/journal/11270
- 3 <u>http://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000014ER/P000280/M026065/ET/152050</u> 5536paper10_module25_etext.pdf

13. Books Suggested:

- Introduction to Soil Microbiology by. Alexander, M., Publisher: John Wiley & Sons, ISBN-13 : 978-0471021797
- 2. Fundamentals of Soil Ecology by Coleman and Crossley, Academic Press, ISBN 9780121797263.
- 3. Soil Ecology, Killham, K., Cambridge University Press, ISBN: 9780511623363
- 4. Environmental chemistry by G.S.Sodhi, ISBN-13 : 978-1842650127
- Introduction to environmental engineering and science Gilbert Masters, Publisher: Pearson, ISBN-10:0134830660
- 6. Water supply engineering by S.K. Garg, Publisher: Khanna, ISBN-13 : 978-8174091208

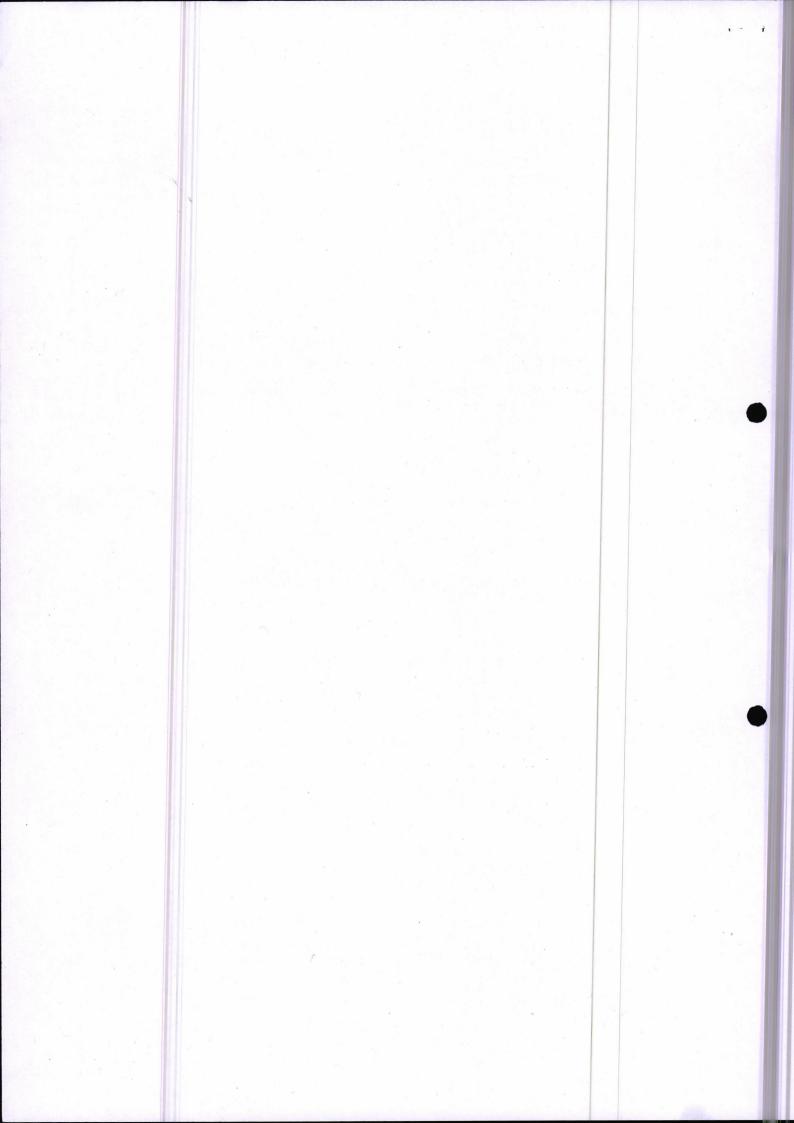
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1.Name of the D	epartment: Environn	nental Science				
	e Soil and water pol		L	Т	Р	Credits
3. Course Code	-Lab e 17040806					
	rse (use tick mark)	Core()	0 DSE(✓)	0	4	2
5. Pre-	10+2.	6.Frequenc	Even	n Odd()	SEC() Either	Erromit
requisite(if		y(use tick	$\langle \cdot \rangle$		Sem()	Every Sem()
any)		marks)				
7. TotalNumbe Lectures=Nil	erofLectures, Tutorial	s,Practical(ass			ter)	
8. Course Desc		utorials=Nil	Pr	actical=52		
	ill introduce the stud	ents to the has	sic concent o	of water poll	ition and	homister
	and the second	the second s			10 10 10 10 10 10 10 10 10 10 10 10 10 1	
	ll also give a platfor					
of water from v	various sources. This	s Course will	also introduc	ce the studen	ts to unde	rstand the
basic chemistry	v of the soil. To kno	w the method	ology for an	alvsis of bas	ic physico	-chemical
	il. To understand the					chienneur
		solid waste al			ications.	
9. Course Ob The objectives of						
	e process of composting	al Varmi	sting/le 1611			
		100 C	sung/landfill.			
	DO, BOD, COD of w			- 		
. To compare p	hysio-chemical proper	ties of polluted	and non-pollu	uted soil.		
. To measure sp	pecific gravity and mo	isture content of	f soil.			
10. Course Outc	omes(COs):					
Jpon successful c	completion of this cour	se, the student v	will be able:			
1. To understand	d the physio-chemical	properties of so	il.			
	d the physio-chemical					
	r with composting/ver		1			
1. To understand	d the process of waste	water treatment				
11.List of Expe		• / • •	1011 1. 1			
 A visit to com A visit to near 	posting/vermicompost by STP/ETP to unders	ing/sanitary lan	dfill site and i	report writing.		
treatment.	by britteri to unders	cand operation a	ind report wit	ting on proces	s of water/	ennuent
. To study the S	oil profile and determi	ination of moist	ure content of	the soil.		
. Determination	of pH and Electrical (Conductivity of	Soil and Wate	er sample.		
	of hardness of water s					
Determination	of the alkalinity of wa					
	Dissolved Oxygen of v					
	Biological oxygen Der Chemical oxygen dem					
	organic carbon content		lei.			
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Brief Description of self learning/E-learning component

- 1. https://www.environmentalpollutioncenters.org/soil/
- 2. https://www.springer.com/journal/11270
- <u>http://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000014ER/P000280/M026065/ET/152050</u>
 <u>5536paper10_module25_etext.pdf</u>

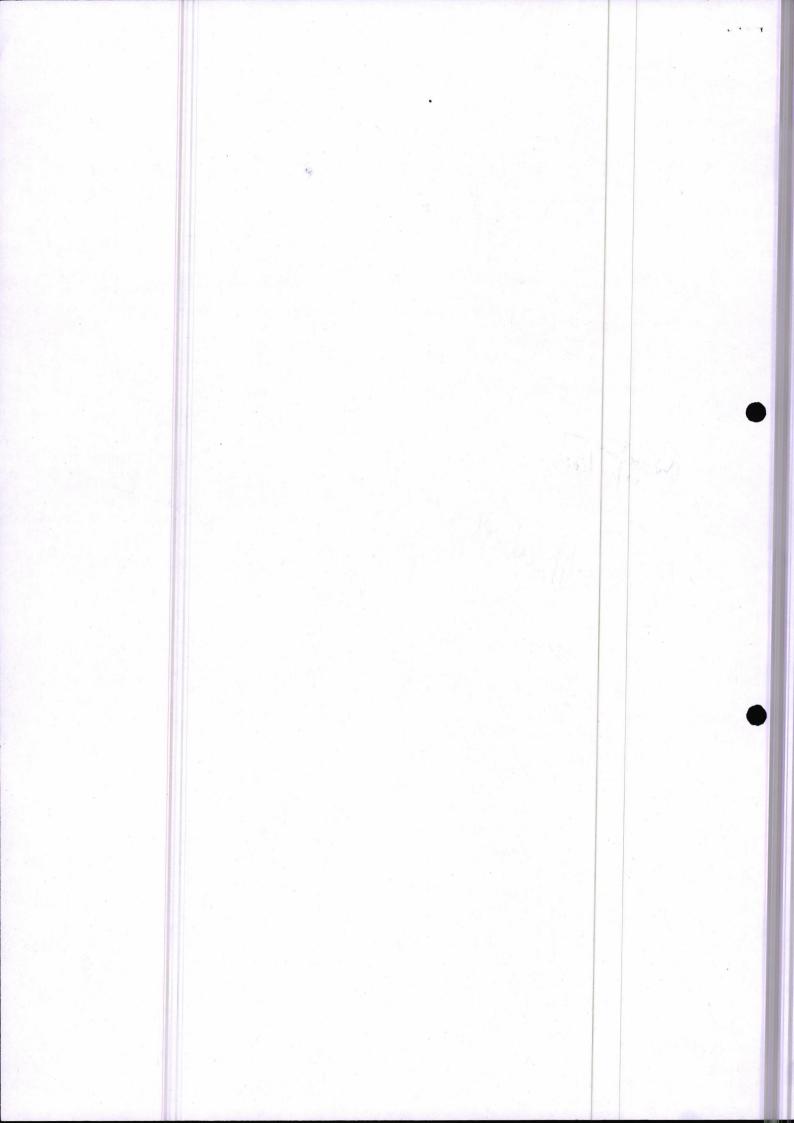
Books Suggested:

- Introduction to Soil Microbiology by.Alexander, M., Publisher: John Wiley & Sons, ISBN-13 : 978-0471021797
- 2. Fundamentals of Soil Ecology by Coleman and Crossley, Academic Press, ISBN 9780121797263.
- 3. Soil Ecology, Killham, K., Cambridge University Press, ISBN: 9780511623363
- 4. Environmental chemistry by G.S.Sodhi, ISBN-13 : 978-1842650127

5. Introduction to environmental engineering and science - Gilbert Masters, Publisher: Pearson, ISBN-10:0134830660

Water supply engineering by S.K. Garg, Publisher: Khanna, ISBN-13: 978-8174091208

P. 6. 202



2. Course Name	EIA and Sustaina	able development	L	Т	Р	Credits
3. Course Code	17040807		4	0	0	4
4. Type of Course	e (use tick mark)	Core ()	DSE (✓)		SEC ()	
5. Pre- requisite(if any)	10+2	6. Frequency (use tick marks)	Even (✓)	Odd 0	Either Sem ()	Every Sem ()
7. Total Number	of Lectures, Tuto	rials, Practical (a	ssuming 15	weeks)		
Lectures $= 52$		Tutorials = Nil		Pr	actical = Ni	
8. Course Descrip					•	
This course will int	roduce students to	the concept of en	vironmental	impacts asso	essment and	its importance.
also help students i	n understanding th	ne various method	lologies and	guidelines of	of EIA in det	ails. This cours
	ferent stages of EL					and the second
	ates and mitigation				and the second	
	wo units of this co					
	elopment, Resourc				_	
	ment of developin			ty, and Role	or developed	
. Course Objectiv		g countries.		1		
The objectives of th			1			
	ents about the conc	cept and basic pro	cess of envi	ronmental in	nnact assessm	nent
The second s	al awareness amon					ilent.
	EIA methodologies	and the second second		incoming the	EIA process.	
			ent process.			
the second second second second second	ciple of sustainable					
	e future aspect of s	sustainability.				
0. Course Outcom	nes (COs):					
Jpon successful con	mpletion of this co	urse, the student v	will be able:			
1. To identify	the environmental	attributes to be co	onsidered fo	r the EIA stu	ıdy.	
2. To formulat	te objectives of the	EIA studies.			1.1.1.1	
3. To identify	the methodology to	o prepare rapid E	IA.			
	EIA reports and en			ne		
	knowledge about		• •			
Init wise detailed		- sustain		pinent.	*	
the second s	mber of lectures =	= 13	Introductio	on to EIA Co	oncept	
ature and purpose	of Environment in	and the second	Sec. 4 . And Sec.	Parks States		
	of Environment in IA notification 199					
lanagement blan. E						
	ance, Composition			,		

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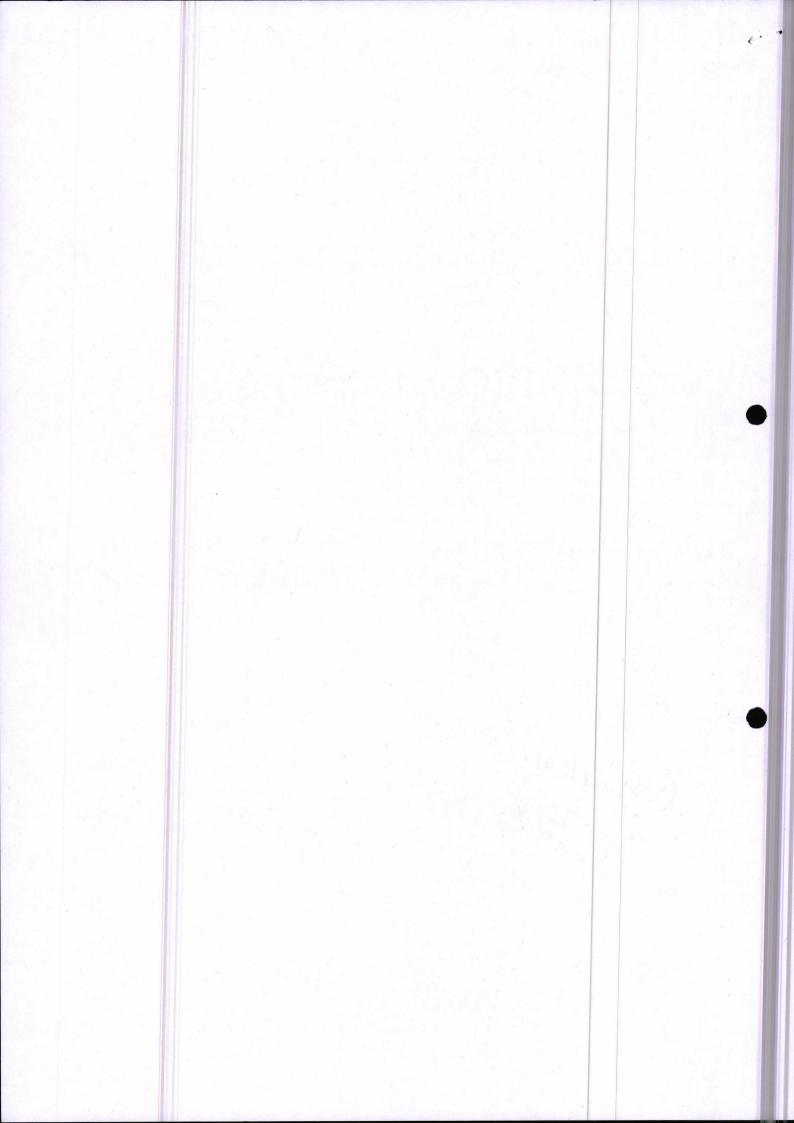
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	Number of lectures = 13	Process and Methods of EIA:
EIA method	plogy: Screening Scoping Alternatives	Base-line data, Impact Identification, Impact predictio
valuation a	ad mitigation. Criteria and standards for a	ssessing significant Impact. Cost- Benefit Analysis ar
valuation o	f Environmental Impacts Public Particip	pation, presentation and review. EIA monitoring ar
uditing.	- Savarennennar impuets. I done I driter	pation, presentation and review. EIA monitoring ar
Unit – 3	Number of lectures = 13	Concept of Sustainability
ustainable	Development: Concept, principles and inc	dicators, SDGs, Agenda for Future Global Sustainab
Developmen	t: Role of developed countries in the	sustainable development of developing countrie
Demographi	e dynamics and sustainability, Integrated a	approach for resource protection and management.
J nit – 4	Number of lectures = 13	Approaches for Sustainab
		Development
evelopment	, National Environment Policy 2006. Rec	poverty and environment, Role of public in sustainable
evelopment	, National Environment Policy 2006, Rec	ent initiatives of renewable energy by Government of
ndia,		energy by Covernment C
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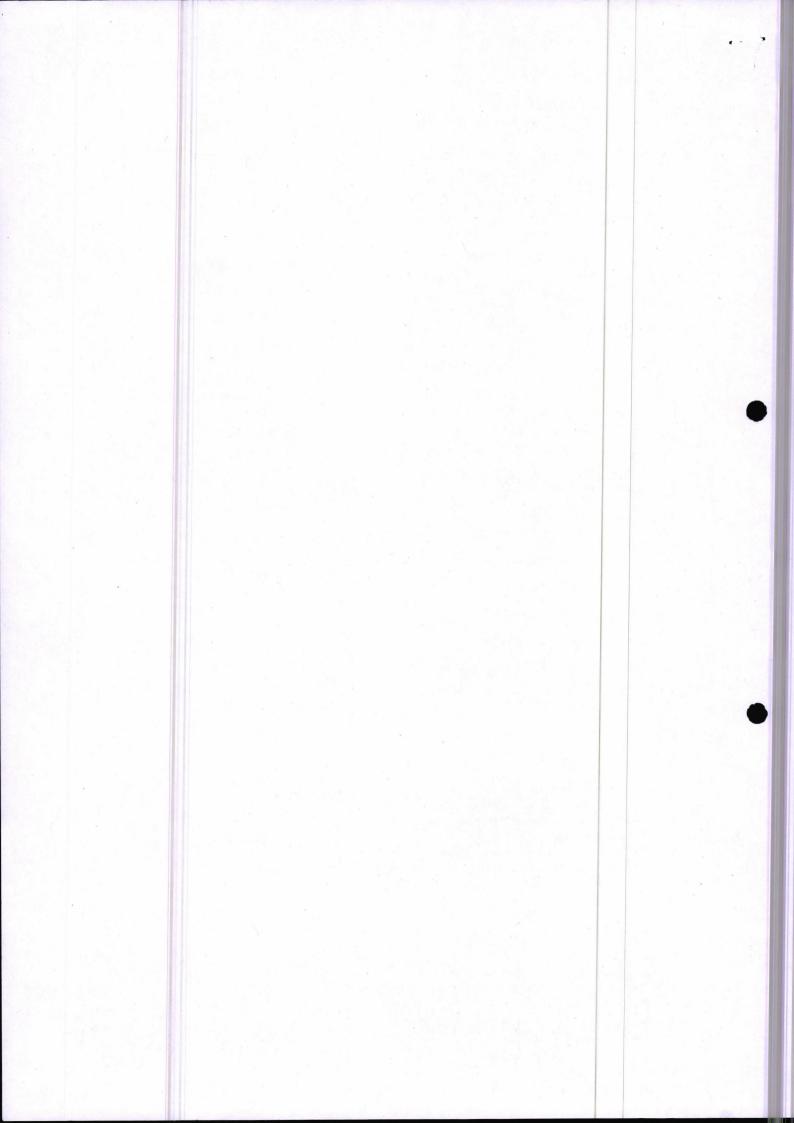
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2. Course Name	EIA and Sustaina Lab	ble Development-	L	Τ	F	Credit
3. Course Code	17040808		0	0	4	2
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- Methods of Environmental Impact Assessment by Morris and the rivel. Publisher: Routledge, ISBN: 9781134107988
- Environmental Impact Assessment by L. W. Canter, Publisher: McGraw-Hill Higher Education; 2nd edition, ISBN-13 : 978-0070097674
- 4. The Sustainability Revolution: Portrait of a Paradigm Shift by Edwards, Andres R., Publishers: New Society, ISBN-13 : 978-0865715318

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