

MANONMANIAM SUNDARANAR UNIVERSITY
TIRUNELVELI, TAMIL NADU, INDIA
Bachelor of Science in Criminology and Forensic Science
Syllabus 2022-2023

Choice Based Credit System (CBCS) and
Learning Outcome based Curriculum Framework (LOCF) Norms

Scheme, Regulations and Syllabus

Title of the course

Bachelor of Science (B.Sc.) Degree course in Criminology & Forensic Science.

Duration of the course

Three years under semester pattern, with Choice Based Credit System and LOCF Norms

Programme Outcomes for the Course

On completion of the programme, students will be able to comprehend and complete the programme outcomes, such as

Program Out comes

PO 1	Propose novel ideas towards solutions to contemporary problems justifying with relevant facts and data
PO 2	Develop scientific outlook and see the relevance of science concepts in all aspects of life
PO 3	Identify, formulate and analyse complex scientific problems using principles of natural and applied sciences
PO 4	Comprehend concepts, frameworks and inventions through various learning methods and effectively communicate them to others orally and in writing.
PO 5	Analyse critically the given scientific data, ascribe meaning to them and draw Objective conclusions.
PO 6	Developing epithetical concern towards various social problems and ways to solve which will be very beneficial to society
PO 7	Imbibe ethical, moral and social values to become cultured and civilized global citizens.
PO 8	Address social and environmental issues from sustainability perspective

Programme Specific Outcomes

PSO 1	Articulate diverse aspects of forensic science like Criminology, Forensic Science, Criminal Law, Police administration, Forensic Physics, Forensic Chemistry, Forensic Biology, Economic offences, Human Rights & Criminal justice system, and collection, preservation and evaluation of different types of evidences using scientific Methods and instrumentation.
PSO 2	Illustrate the functioning of the judicial system, police organizations, forensic Science laboratories, techniques involved in collection, preservation and evaluation of evidences; various aspects of the allied sciences such as Forensic Serology, Medicine & Toxicology, that assist in forensic investigation protocols and step by step development of the investigative procedures.
PSO 3	Differentiate between and among methods/protocols, instrumentation and evaluative procedures required in the investigative process that is required for crime solving and also document the same as per norms.
PSO 4	Recommend and develop various aspects of investigation protocols based on the type of crimes, evidences collected, evaluative procedures conducted and aid in solving cases keeping in mind the laws and justice systems pertaining to the same.

Eligibility

Candidates for the Degree of Criminology & Forensic Science should have passed higher secondary examination in Specific group conducted by the Board of Secondary Education, Government of Tamil Nadu or any other equivalent examination prescribed and accepted by the Syndicate / SCAA of the Manonmaniam Sundaranar University.

Structure of the programme

This B.Sc. programme will consist of:

a. *Part I - Tamil/Other Languages*

Part II - English

Part III - Core courses, (Major) Elective courses and Add-on Major (Mandatory)

Part IV - Skill Based, Common and Non-Major Elective

Part V - Extension Activity (NCC, NSS, YRC, UWF)

Which are compulsory for all student:

- ***III Semester: 2 Language, 2 Core, 1 Skill Based core, 1 Non Major Elective and 1 Common***

- *IV Semester: 2 Language, 2 Core, 1 Skill Based core, 1 Non Major Elective and 1 Common*
 - *V Semester: 2 Core, 1 Mini Project, 1 Major Elective, 1 Major Practical, and 1 Skill Based Common,*
 - *VI Semester: 5 Core and 1 Major Project*
- b. *Non-Major Elective courses which students can choose from amongst the courses offered Manonmaniam Sundaranar University Affiliated Colleges.*
- c. *(Field Visits), Hands on Training in specific subject and Dissertation/ Project (Mini Project) are compulsory.*

Examination

There will be an internal assessment comprising of tests, seminars and assignments and one End-semester examination during each semester. The internal assessments will form 25 % of the marks (including 20 marks for tests, 5 marks for assignments and seminar presentation) and the end semester examination will form 75 % of the total marks.

In select subjects the internal assessments will form 25 % of the marks (including 20 marks for tests, 5 marks for assignments seminar presentation), Internal Evaluation of Practical 25 % of the marks and the end semester examination will form 50 % of the total marks

QUESTION PAPER PATTERN – I

Time: Three hours

Maximum: 75 Marks

PART – A

(10X1=10 Marks)

Answer ALL the Questions, choose the correct answer.

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

PART – B

(5X5=25 Marks)

Answer ALL the Questions, choosing either (a) or (b), in about 150 words.

11. (a) _____
(or)
(b) _____
12. (a) _____
(or)
(b) _____
13. (a) _____
(or)
(b) _____

14. (a) (or)
(b)
15. (a) (or)
(b)

PART – C

(5X8=40 Marks)

Answer ALL the Questions, choosing either (a) or (b), in about 250 words.

16. (a) (or)
(b)
17. (a) (or)
(b)
18. (a) (or)
(b)
19. (a) (or)
(b)
20. (a) (or)
(b)

QUESTION PAPER PATTERN – II

Time: Three hours

Maximum: 50 Marks

PART – A (10X1=10 Marks)

Answer ALL the Questions, choose the correct answer.

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

PART – B (5X3=15 Marks)

Answer ALL the Questions, choosing either (a) or (b), in about 100 words.

11. (a)

(or)

12. (b)
(a)

(or)

13. (b)
(a)

(or)

14. (b)
(a)

(or)

15. (b)
(a)

(or)

(b)

PART – C (5X5=25 Marks)

Answer ALL the Questions, choosing either (a) or (b), in about 200 words.

16. (a)

(or)

(b)

17. (a)

(or)

(b)

18. (a)

(or)

(b)

19. (a)

(or)

(b)

20. (a)

(or)

(b)

B.Sc. Criminology & Forensic Science

Abstract of the Syllabus 2022-2023

SEMESTER III

Paper	Part	Status	Title of the Subjects	Hrs/Week	Credits	Maximum Marks				Passing Marks	
						Int	Prl	Ext	Total	Min	Max
1	I	Language	Tamil/Other Languages	6	4	25	-	75	100	40	100
2	II	Language	English	6	4	25	-	75	100	40	100
3	III	Core 6	Forensic Chemistry	6	4	50	-	50	100	40	100
4	III	Core7	Penology & Correctional Administration	4	4	25	-	75	100	40	100
5	III	Skill Based Core	Cybercrimes & Cyber Security	4	4	25	-	75	100	40	100
6	IV	Non-Major Elective	Human Right & Criminal Justice Administration	2	2	25	-	75	100	40	100
7	IV	Common	Yoga	2	2	25	-	75	100	40	100
Sub Total Credits				30	24						

SEMESTER IV

Paper	Part	Status	Title of the Subjects	Hrs/Week	Credits	Maximum Marks				Passing Marks	
						Int	Prl	Ext	Total	Min	Max
1	I	Language	Tamil/Other Languages	6	4	25	-	75	100	40	100
2	II	Language	English	6	4	25	-	75	100	40	100
3	III	Core8	Criminal Psychology	6	4	25	-	75	100	40	100
4	III	Core 9	Forensic Biology	6	4	50	-	50	100	40	100
5	III	Skill Based Core	Questioned Documents	4	4	25	-	75	100	40	100
6	IV	Non-Major Elective	Economic Offences	2	2	25	-	75	100	40	100
7	V	Common	Extension Activity (NCC, NSS, YRC, UWF)	-	1				100	40	100
Sub Total Credits				30	23						

SEMESTER V

Pa pe r	Par t	Status	Title of the Subjects	Hr s/ Wee k	Cr edi ts	Maximum Marks				Passing Marks	
						Int	Prl	Ext	Total	Min	Max
1	III	Core10	Basic Research Methods	6	4	25	-	75	100	40	100
2	III	Core11	Police Investigation	6	4	25	-	75	100	40	100
3	III	Mini Project	Visit to Institutions and Scene of Crime	8	6	25	-	75	100	40	100
4	III	Major Elective	Fingerprint Examination	4	4	50	-	50	100	40	100
5	III	Major (Practical)	Technological Methods in Forensic Science	4	2	50	-	50	100	40	100
6	IV	Skill Based Common	Personality Development/ Effective Communication/ Youth Leadership	2	2	25	-	75	100	40	100
Sub Total Credits				30	22						

SEMESTER VI

Pa pe r	Part	Status	Title of the Subjects	Hr s/ Wee k	Cr edi ts	Maximum Marks				Passing	
						Int	Pr l	Ext	Total	Min	Max
1	III	Core12	Fundamentals of Victimology	6	4	25	-	75	100	40	100
2	III	Core 13	Local and Special Laws	6	4	25	-	75	100	40	100
3	III	Core 14	Fundamentals of Forensic Medicine & Toxicology	4	4	50	-	50	100	40	100
4	III	Core 15	Forensic Serology	5	4	50	-	50	100	40	100
5	IV	Allied	Forensic Anthropology	2	2	25	-	75	100	40	100
6	III	Major Project	Dissertation	7	10	25	-	75	100	40	100
Sub Total Credits				30	27						

All together 142 credit courses

III SEMESTER

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Core 6		FORENSIC CHEMISTRY	4	1	1	4

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- The students would be able to understand the various types of drugs commonly abused along with their presumptive and instrumental analysis. They would know the legal provisions regarding drugs, cosmetics, and adulterated food. They would also know types of beverages and their forensic analysis and also forensic investigation of fire and arson scene evidences

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Familiarizing with basic ideas of various testing methods of chemicals and the instrumentation used in forensic chemistry	K1 K2
CO2	Analyze trace amounts of petroleum products in crime scene evidence	K2
CO3	Analyze Fire & Arson evidences	K3
CO4	Understanding of Adulteration made in Food and Beverages	K4 K5
CO5	Classify of explosives, including the synthesis and characterization of representative analogues	K5

K1: Remember **K2:** Understand **K3:** Apply **K4:**Analyze**K5:** Evaluate **K6:** Create

Course Outline:

Unit-I: Forensic Chemistry- Introduction, Definition, Scope, Types of cases/exhibits, preliminary screening, presumptive test (colour and spot test), micro chemical methods of analysis, examination procedures involving standard methods and instrumental techniques, analysis of trace evidences, cosmetics and detective dyes

Unit-II: Petroleum Products- Introduction, Classification of Petroleum Products. Examination of Petroleum Products: distillation and fractionation, various fractions and their commercial uses, standard methods of analysis of petroleum products in Forensic Exhibits.

Unit-III: Fire & Arson- Chemistry of fire, Origin and Cause of Fire, Types of Ignitable Liquids, Forensic Investigation of Fire and Arson Scenes, analysis of Fire and Arson exhibits by Instrumental Methods.

Unit-IV: Adulteration in Beverages- Classification of Beverages (alcoholic and non-alcoholic beverages, their composition), Examination of Alcohol in Liquor-Test for Ethyl Alcohol, Test for Methanol, Test for Furfural.

Unit-V: Explosives—Definition, Classification of explosives – speed-based explosives, sensitive based explosives, usage-based explosives; Synthesis and characteristics of TNT, PETN and RDX. Explosion process, Blasting agents, Blast waves. Colorimetric & Microcrystalline test for Explosives Bomb scene management.

Practicals: (Internal Evaluation- 25 Marks, apart from CIA)

1. To carry out analysis of Gasoline
2. To carry out analysis of Arson.
3. To carry out analysis of diesel.
4. To test for presence of ethanol in Liquor.
5. To prepare case report on bomb scene management

Internal Evaluation: 25 Marks CIA+ 25 Marks Practical= 50 Marks**External Evaluation: 50 Marks****RECOMMENDED READINGS**

1. A.A. Moenssens, J. Starrs, C.E. Henderson and F.E. Inbau, Scientific Evidence in Civil and Criminal Cases, 4th Edition, The Foundation Press, Inc., New York (1995).
2. R. Saferstein, Criminalistics, 8th Edition, Prentice Hall, New Jersey (2004).
3. W.J. Tilstone, M.L. Hastrup and C. Hald, Fisher's, Techniques of Crime Scene Investigation, CRC Press, Boca Raton (2013).
4. F.G. Hofmann, A Handbook on Drug and Alcohol Abuse, 2nd Edition, Oxford University Press, New York (1983).

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Medium	High	High	High	Medium	High	Low	Low
CO2	High	High	Medium	Medium	Medium	High	Low	Low
CO3	Medium	High	Medium	Medium	Medium	High	Low	Low
CO4	Medium	High	High	Medium	Medium	High	Low	Medium
CO5	Medium	Medium	High	Medium	Low	Low	Low	Low
Correlation Levels: Low Medium High								

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	High	Low	Medium	High	High
CO2	High	High	Medium	Low	Medium
CO3	High	High	High	Low	Low
CO4	Medium	Low	Medium	Medium	High
CO5	Medium	Low	Medium	Low	High
Correlation Levels: Low Medium High					

III SEMESTER

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Core 7		PENOLOGY & CORRECTIONAL ADMINISTRATION	4	0	0	4

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- *The main objective of the paper is to introduce the students' various types of punishments and their significance in Indian criminal justice system. The course will educate the students about the origin and development and reformation of theories related to penal policies and their practice different correctional institutions in India.*

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Understand nature of various types of punishments and their significance.	K1 K2
CO2	Know about important theories of punishment and their policy implications.	K3
CO3	Familiarize with historical aspects of prison system in India.	K5
CO4	Understand role of various correctional institutions.	K2
CO5	Explore community based correctional setups and their procedural aspects.	K4
K1: Remember K2: Understand K3: Apply K4: Analyze K5: Evaluate K6: Create		

Course Outline:

Unit-I: Nature of Punishment: Definition, nature and scope. Types of Punishment. Corporal and Capital Punishment.

Unit-II: Theories of Punishment: Retributive theory, Preventive theory, deterrence theory, Reformation theory. Restorative Punishment- Community Services

Unit-III: Prison Systems: Historical development of Prison system in India. Prison Manual. Prison Act.

Unit-IV: Correctional Institutions-Adult Institutions: Central, District and Sub Jails. Juvenile Institutions: Observation Homes, Special Homes. Women Institutions: Vigilance Home, Protective home. Open Prisons.

Unit-V: Community based Corrections-Probation: Concept and Scope, Historical development of probation. Probation in India- Probation of offenders Act. Probation procedures: Pre-sentence Investigation report, Revocation of probation etc. Parole: Meaning and Scope. Parole - provisions and rules. After Care services, Community Services as punishment.

RECOMMENDED READINGS:

1. Andrew Von Hirsch, (1987) Past or future crimes: Deservedness and Dangerousness in the Sentencing of Criminals, Rutgers University Press.
2. Ahmed Siddique, (1993). Criminology, Problems and Perspectives, III Edn., Eastern Book Company, Lucknow.
3. Bhattacharya S.K., (1986). Probation system in India, Manas Publications, New Delhi.
4. Brodie, S.R., (1976). Effectiveness of sentencing, Home office, London.
5. Chockalingam K., (1993). Issues in Probation in India, Madras University Publications, Madras.
6. Christopher J. Emmins, (1985). A practical approach to sentencing, Financial Training Publications Ltd., London.
7. Devasia, V.D & Leelamma Devasia, (1992). Criminology, Victimology and Corrections, S.B.Mangia for Ashish Publishing House, New Delhi.
8. Goswami, B.K. (1980). Critical Study of Criminology and Penology, Allahabad Agency, Allahabad.
9. Ghosh, S., (1992). Open Prisons and the Inmates, Mittal Publications, New Delhi.
10. Naresh Kumar, (1986). Constitutional Rights of Prisoners, Mittal Publishers, New Delhi.
11. Mulla Committee Report on Prison Reforms, 1983. Govt. of India.
12. Paranjpe, N.V., (2002). Criminology and Penology, Central Law Publications, Allahabad

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Medium	Medium	Low	Low	Low	Low	Medium	Low
CO2	Medium	High	High	Medium	Low	Medium	Low	Low
CO3	Low	Low	Low	Low	Medium	Medium	Medium	Low
CO4	Medium	Medium	High	Medium	Medium	Medium	High	Medium
CO5	High	High	Medium	Medium	High	High	High	Low
Correlation Levels: Low Medium High								

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	Low	Low	Low	Low	Low
CO2	Low	Medium	Low	Low	Low
CO3	Medium	Low	Medium	Low	Low
CO4	Medium	Medium	Medium	Low	Low
CO5	Medium	Medium	Medium	Low	Low
Correlation Levels: Low Medium High					

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Skill Based Core		CYBERCRIMES & CYBER SECURITY	4	0	0	4

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- The main Objective is to introduce various types of cybercrimes and technological and legal aspects of cybercrimes. Students will get familiarize with policing procedures followed in cybercrime investigation.

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Understand nature basic idea about cybercrime and its origin	K1 K2
CO2	Check about various typologies of cyber crimes	K2 K3
CO3	Familiarize with law related to cybercrimes in India	K1 K4
CO4	Understand various cyber security related terminologies	K6
CO5	Understand about cyber policing practices in India	K2
K1: Remember K2: Understand K3: Apply K4:AnalyzeK5: Evaluate K6: Create		

Course Outline:

Unit-I: Introduction: Cyber Crime: Meaning, Definition and Nature of Cyber Crime, Historical development of Cybercrime Causes for cybercrime.

Unit-II: Typology of Cybercrime: Hacking, cracking, DoS – Viruses, worms, malwares, bombs, email bombing, data diddling, phishing, steganography, cyber stalking, spoofing, pornography, defamation, computer vandalism, cyber terrorism, cyber warfare.

Unit-III: Cyber Laws: Cyber laws in India Information Technology (amended) Act, 2008 Section. 65 to Section 85

Unit-IV: Cybercrime and Security: Information security-Good information security practices in India. E-mail security – Web application security, malware security, network security, cloud security and wireless security.

Unit-V: Cyber Policing: Cyber Policing in India: Legal Status. Social Networking Sites vis-à-vis Human Rights. New challenges faced by police in Cybercrime.

RECOMMENDED READINGS:

- Cyber Law & Cyber Crimes By Advocate Prashant Mali; Snow White publications, Mumbai
- Cyber Law in India by Farooq Ahmad; Pioneer Books
- Information Technology Law and Practice by Vakul Sharma; Universal Law Publishing Co. Pvt. Ltd.
- The Indian Cyber Law by Suresh T. Vishwanathan; Bharat Law House New Delhi

5. Guide to Cyber and E – Commerce Laws by P.M. Bukshi and R.K. Suri; Bharat Law House, New Delhi
6. Guide to Cyber Laws by Rodney D. Ryder; Wadhwa and Company, Nagpur
7. The Information Technology Act, 2000; Bare Act – Professional Book Publishers, New Delhi
8. Computer Forensics: Principals and Practices by Linda Volonino, Reynaldo Anzaldua and Jana Godwin; Pearson Prentice – Hall 2007
9. First Responder’s Guide to Computer Forensics by Richard Nolan et al; Carnegie Mellon, 2005.
10. Digital Evidence and Computer Crime, 2nd Ed. By Eoghan Casey; Academic Press, 2004.
11. The Regulation of Cyberspace by Andrew Murray, 2006; Rutledge – Cavendish.
12. Scene of the Cybercrime: Computer Forensics Handbook by Syngress.
13. Security and Incident Response by Keith J. Jones, Richard Bejtloich and Curtis W. Rose

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	High	High	Low	Medium	Low	High	Low	Medium
CO2	High	High	Medium	Low	Low	High	Medium	Low
CO3	Medium	High	Low	Medium	Medium	High	Low	Medium
CO4	High	Medium	Low	Low	Low	Medium	Low	Low
CO5	High	High	High	Medium	Low	High	High	Medium
Correlation Levels: Low Medium High								

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Medium	High	High	Medium	High
CO2	Low	Medium	Low	Medium	Low
CO3	High	High	Low	Low	Medium
CO4	Low	Medium	High	Low	High
CO5	Medium	Low	Low	Medium	High
Correlation Levels: Low Medium High					

III SEMESTER

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
NME		HUMAN RIGHTS AND CRIMINAL JUSTICE ADMINISTRATION	2	0	0	2

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- *To acquire knowledge about the human rights and connecting the theories to criminal justice administration for understand the relevancy and relationship between these two disciplines.*

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Understand Human rights and its foundational Aspects	K1 K2
CO2	Familiarize with national instrumentations of Human Rights in India	K3
CO3	Appreciate the role of internal instruments of Human Rights and their Significance	K1 K4
CO4	Understand Legal aspects of Human right in Indian	K6
CO5	Understand various agencies of Human Rights in Indian and Global level	K2
K1: Remember K2: Understand K3: Apply K4:AnalyzeK5: Evaluate K6: Create		

Course Outline:

Unit-I: Introduction: Human Rights: Meaning, Definition, Characteristics & Nature – History– Landmark Developments - Theories - Natural rights theory, social contract theory, divine rights theory – Classification – Civil, Political, Economic, and Social& Cultural Development oriented rights

Unit-II: National Instruments: Genesis: Constitutional guarantees on human rights, Protection of Human Rights Act, 1993, Landmark case studies on violation of Human rights and privacy.

Unit-III: International Instruments: United Nations documents: Universal Declaration of Human Rights, 1948 – International covenants on human rights: International Covenant on Civil and Political Rights (ICCPR) –International Covenant on Economic, Social and Cultural Rights (ICESCR).

Unit-IV: Human Rights and Criminal Justice Agencies: Custodial violence, Handcuffing, Aggravated sexual harassment against Women and Child, Rights of the accused, Rights of prisoners, Rights of victims of human rights violations, Human rights violations of Women, Children, Minorities, Refugees, SC/STs, Elderly people, Euthanasia.

Unit-V: Human Rights agencies: National Human Rights Commission (NHRC) and State Human Rights Commission (SHRC)- role, structure and functioning; UN Organizations, Amnesty International, Human Rights Watch; Forum Asia; AINNI, International Red cross Committee.

RECOMMENDED READINGS:

1. Iyer V.R. Krishna (1986) Human Rights and the Law, Vedpal Law House, Indore
2. Thilagaraj. R. (Ed) (2002) Human Rights and Criminal Justice Administration, APH Publishing Corporation, New Delhi
3. Parmar, Lalit., (1998). Human Rights, Anmol Publications Pvt Ltd. New Delhi.
4. Human rights Today – A United Nations Priority, U.N. Publications. Department of Public information, United Nation, New York.
5. Universal declaration of Human rights, 1948
6. Human rights: A source book, (1996) NCERT publications, New Delhi

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Low	Medium	Medium	High	Low	High	Medium	Medium
CO2	Medium	Medium	Medium	High	Medium	High	High	High
CO3	High	Low	Medium	Medium	Medium	High	High	High
CO4	Medium	Low	Medium	High	High	High	High	High
CO5	Medium	Low	Medium	Medium	Medium	High	Medium	High
Correlation Levels: Low Medium High								

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	Low	Medium	Low	Medium	Medium
CO2	Medium	Medium	Medium	High	Low
CO3	Medium	Medium	Low	High	Medium
CO4	Low	Medium	Medium	High	Low
CO5	Low	Medium	Medium	High	High
Correlation Levels: Low Medium High					

IV SEMESTER

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Core 8		CRIMINAL PSYCHOLOGY	4	2	0	4

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

- The main objective of the course is to make students familiar with basic concepts of criminal psychology and to understand the origin of criminal behaviour, the course also emphasizes on learning about detection of deceptions using various scientific methods.

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Overview the criminal psychology and its applications.	K1
CO2	Apply legal aspects of criminal psychology.	K2
CO3	Appreciate importance of psychological assessment in gauging criminal behavior.	K3
CO4	Use tools and techniques required for detection of deception.	K4
CO5	Do critical assessment of advanced forensic techniques like polygraphy, Narco analysis and brain electrical oscillation signatures.	K5
K1: Remember K2: Understand K3: Apply K4:AnalyzeK5: Evaluate K6: Create		

Course Outline:

Unit-I: Basics of Criminal Psychology- Definition and fundamental concepts of criminal psychology and criminal psychiatry. Psychology and law. Ethical issues in criminal psychology. Assessment of mental competency. Mental disorders and criminal psychology.

Unit-II: Psychology of evidence- Eyewitness testimony, confession. Criminal Profiling. Psychology in the courtroom, with special reference to Section 84 IPC.

Unit-III: Psychology and Criminal Behaviour- Psychopathology and personality disorder. Psychological assessment and its importance. Serial Murderers. Psychology of terrorism. Biological factors and psycho-social factors, abuse. Juvenile delinquency, Child abuse (physical, sexual, emotional), juvenile sex offenders, legal controversies.

Unit-IV: Polygraph- Historical aspects of Polygraph, Principles of polygraph, psycho physiological aspects, operational aspects, Question formulation techniques, Interviewing technique procedure, The Art-Polygraph, Legal and Ethical aspects, Human rights of individual.

Unit-V: Narco-Analysis-Historical aspects, Principle and Theory, General Procedure –Legal and Ethical aspects, Human rights of individual. Brain Electrical Oscillation Signature (BEOS) Profiling: Principle and Theory, General Procedure – Legal and Ethical aspects, Human rights of individual (video classes).

RECOMMENDED READINGS:

- 1.A.A. Moenssens, J. Starrs, C.E. Henderson and F.E. Inbau, Scientific Evidence in Civil and Criminal Cases, 4th Edition, The Foundation Press, Inc., New York(1995).
- 2.R. Saferstein,Criminalistics, 8th Edition, Prentice Hall, New Jersey (2004).
- 3.J.C. DeLadurantey and D.R. Sullivan, Criminal Investigation Standards, Harper &Row, New York (1980).
- 4.J. Niehaus, Investigative Forensic Hypnosis, CRC Press, Boca Raton (1999).
- 5.E. Elaad in Encyclopedia of Forensic Science, Volume 2, J.A. Siegel, P.J. Saukkoand G.C. Knupfer (Eds.), Academic Press, London (2000).

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Medium	High	Medium	High	Low	Medium	Low	Medium
CO2	High	High	Medium	High	Medium	Medium	Low	Medium
CO3	High	Medium	Medium	High	Medium	Medium	Low	Medium
CO4	Medium	Medium	Medium	High	Low	Medium	Low	Medium
CO5	Medium	Medium	Medium	High	Medium	Medium	Low	Medium
Correlation Levels: Low Medium High								

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	High	High	Medium	High	High
CO2	High	Medium	Medium	Medium	Medium
CO3	High	Medium	Medium	Medium	High
CO4	High	High	Medium	High	Medium
CO5	Medium	Medium	Medium	High	High
Correlation Levels: Low Medium High					

IV SEMESTER

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Core 9		FORENSIC BIOLOGY	4	1	1	4

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- The students would learn the different aspects of Forensic Biology and some very specific areas such as Forensic Botany, Wild Life Forensics, Forensic Microbiology and Forensic Entomology. The students shall also study in detail the Forensic Examination of Hair and Diatoms Samples

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	To understand the nature and importance of biological & Entomological evidences in Forensic Science.	K1 K2 K5
CO2	To understand the various aspects of Forensic Botany & types of Botanical Evidences and to Present comprehensive knowledge of Pollens, Diatoms and its importance in drowning cases.	K3
CO3	Familiarize with new trend named Wildlife Forensics aid in conserving natural resources.	K4 K5
CO4	Know about role of Forensic Entomology assists in death investigations.	K5
CO5	Analyzing Significance of Forensic Microbiology.	K5
K1: Remember K2: Understand K3: Apply K4: Analyze K5: Evaluate K6: Create		

Course Outline:

Unit-I: Forensic Biology: Introduction, Nature and importance of biological evidence Basic Concept in Brief Significance of hair evidence Structure of human hair. Comparison of hair samples. Morphology and biochemistry of human hair. Comparison of human and animal hair.

Unit-II: Forensic Botany: Introduction, Applications of Forensic Botany, Botanical Evidences: Wood: Types of Wood, Methods of comparison. Leaves: Identification of various types of leaves and their anatomy, Methods of comparison. Pollens: Structure, function, methods of identification and comparison. Diatoms: Nature, location, structure, extraction from various body tissues, preparation of slides, methods of identification and comparison, Forensic Significance.

Unit-III: Forensic Microbiology: Microbial Forensics - Forensically relevant bacteria's and their significance, Microbial profiles as identification tools, use of microorganisms in bioterrorism, Anthrax, transmission of HIV as a criminal act, role of microbes in food poisoning.

Unit-IV: Wild Life Forensics: Introduction and Significance of Wild Life Forensics Crimes against Wild life. Protected and Endangered Species of Animals and Plants. Identification and Examination of wild life materials such as skin, Hair, fur, bones, nails, horn, teeth, flowers and plants, by conventional and modern methods, Identification of Pug marks of various animals.

Unit-V: Forensic Entomology - Introduction and Forensic Significance of Entomology, Insects of Forensic Importance, Collection of Entomological Evidences during Death Investigations, Insect Succession on corpse and its relationship to determine Time Since Death. Case studies.

Practicals: (Internal Evaluation- 25 Marks, apart from CIA)

1. To Study the Morphology of Human Scalp Hair
2. Study of pollen grains of forensic significance.
3. Mounting diatoms on slide for Observation.
4. To Study the Morphology of Animal Scalp Hair
5. Collection packing and forwarding of biological evidence.

Internal Evaluation: 25 Marks CIA+ 25 Marks Practical= 50 Marks

External Evaluation: 50 Marks

RECOMMENDED READINGS

1. Chowdhuri, S. (1971): Forensic Biology, B P R & D, Govt. of India.
2. Robertson, J. (1996): Forensic Examination of Hair. Taylor and Francis, USA.
3. Boorman, K. E: Blood Group Serology, Churchill, and Lincoln, P. J. (1988)
4. Race, R. R. and Sangar, R. (1975): Blood Groups in Man. Blackwell Scientific, Oxford.
5. Saferstein, R. (1982): Science Handbook, Vol. I, II and III, Prentice Hall, New Jersey.
6. Gillet, E. (1969): Marker 's in Human Blood, Davis, Pennsylvania.
7. Culliford, B. E. (1971), The examination and Typing of Blood Stains, US Deptt. of Justice, Washington.
8. Chowdhuri, S. (1971): Forensic Biology, B P R & D, Govt. of India.
9. Dunsford, I. and Bowley, C. (1967): Blood Grouping Techniques, Oliver & Boyd, London.
10. Eckert, W. G. & James, S.H. (1989): Interpretation of Blood Stain, Evidence, Elsevaier, New York
11. Advanced Forensic Biology and Serology James, S.H. and Nordby, J.J. Forensic Science: An Introduction to Scientific And Investigative Techniques 4 th ed. CRC Press: USA; (2015).
12. Saferstein, R. Criminalistics-An Introduction to Forensic Science 6th ed. PrenticeHall: New Jersey;(1998).
13. Sharma, B.R. Forensic Science in Criminal Investigation and Trials 3rd ed. Universal Law Publishing: New Delhi; (2001).

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Medium	High	Medium	High	Low	Medium	Low	Medium
CO2	High	High	Medium	High	Medium	Medium	Low	Medium
CO3	High	Medium	Medium	High	Medium	Medium	Low	Medium
CO4	Medium	Medium	Medium	High	Low	Medium	Low	Medium
CO5	Medium	Medium	Medium	High	Medium	Medium	Low	Medium
Correlation Levels: Low Medium High								

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	High	High	Medium	High	High
CO2	High	Medium	Medium	Medium	Medium
CO3	High	Medium	Medium	Medium	High
CO4	High	High	Medium	High	Medium
CO5	Medium	Medium	Medium	High	High
Correlation Levels: Low Medium High					

IV SEMESTER

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Skill Based Core		QUESTIONED DOCUMENTS	4	0	0	4

Course Objectives:

The main objectives of this course are

- The main objective of the paper is to understand the importance of examining questioned documents in crime cases. The tools required for examination of questioned documents. The significance of comparing hand writing samples. The importance of detecting frauds and forgeries by analysing questioned documents.

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Understand nature of various types of questioned documents	K1 K2
CO2	Know about important tools used in analysing the questioned documents.	K3
CO3	Familiarize with concept of documents and its comparison.	K4 K5
CO4	Understand the alteration and forgeries in document.	K2
CO5	Explore counterfeit currencies and its nuances.	K3 K4
K1: Remember K2: Understand K3: Apply K4:AnalyzeK5: Evaluate K6: Create		

Course Outline:

Unit I: Basics of Questioned Documents

Nature and Scope of Questioned Documents- Definition of questioned documents-Types of questioned documents. Preliminary examination of documents.

UNIT II: Instrumentation in Questioned Documents

Basic tools needed for forensic documents' examination – ultraviolet, visible, infrared and fluorescence spectroscopy, photomicrography, microphotography, visible spectral comparator, electrostatic detection apparatus - Determining the age and relative age of documents.

UNIT III: Document Comparison

Comparison of Documents- Comparison of handwriting. Development of individuality in handwriting. Natural variations and fundamental divergences in handwritings. Class and individual characteristics- Merits and demerits of exemplar and non-exemplar samples during comparison of handwriting. Standards for comparison of handwriting- Comparison of paper, ink, printed documents, typed documents, Xeroxed documents.

UNIT IV: Alteration and Forgeries

Forgeries- Alterations in documents, including erasures, additions, over-writings and obliterations. Indented and invisible writings. Charred documents. Handwriting– Methods- Applications of handwriting recognition.

UNIT V: Counterfeit Currencies

Examination of counterfeit; Indian currency notes, passports, visas and stamp papers. Disguised writing and anonymous letters.

RECOMMENDED READINGS:

- O. Hilton, Scientific Examination of Questioned Documents, CRC Press, Boca Raton (1982).
A.A. Moenssens, J. Starrs, C.E. Henderson and F.E. Inbau, Scientific Evidence in Civil and Criminal Cases, 4th Edition, Foundation Press, New York(1995).
R.N. Morris, Forensic Handwriting Identification: Fundamental Concepts and Principles, Academic Press, London(2000).
E. David, The Scientific Examination of Documents – Methods and Techniques, 2nd Edition, Taylor & Francis, Hants (1997).

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	High	High	High	High	Low	High	Medium	High
CO2	Low	Medium	High	Low	Medium	High	Medium	High
CO3	Medium	High	Medium	Medium	Low	High	Low	High
CO4	High	Medium	Low	Medium	Low	Medium	Low	Medium
CO5	High	Low	Low	High	High	Low	High	Low
Correlation Levels:	Low	Medium	High					

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	High	High	Medium	Low	High
CO2	High	Low	Low	Medium	High
CO3	Medium	High	High	Low	High
CO4	Low	Low	Low	Low	Medium
CO5	Low	Medium	Medium	High	Low
Correlation Levels:	Low	Medium	High		

IV SEMESTER

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
NME		ECONOMIC OFFENCES	2	0	0	2

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- The main objective of the paper is to educate students about the vast verities of economic offences and their links with other dominating criminal offences in real time society. the paper also aimed at introducing various legal aspects of prevention and detection of economic offences.

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Understand Basic economic and financial terminology.	K1 K2
CO2	Appreciate economic crimes in India are linked to several other crimes.	K3
CO3	Explore Economic crimes often have a bearing on national security.	K1 K4
CO4	Checktypes of common economic offences and their consequences.	K3 K6
CO5	Understand various agencies and their role in mitigating economic crimes.	K2
K1: Remember K2: Understand K3: Apply K4:AnalyzeK5: Evaluate K6: Create		

Course Outline:

Unit-I: Taxonomy of Economic Offences - Criminogenic Factors - Fundamentals of economics in economic offences - Tax evasion. Excise duty evasion. Fraudulent bankruptcy. White collar crime.Economic exclusion. Black money.

Unit-II: Corruption and Bribery byPublic Servants/ Sectors- Money laundering and Hawala transactions.Insurace frauds.Corporate frauds.Bank frauds.Ponzi scheme. Pyramid scheme. Illicit drugtrafficking. Trafficking in human organs. Cultural objects trafficking. Racketeering in employment.Racketeering in false travel documents.

Unit-III: Applied Economics in Processing Evidence - Forensic accountancy and forensic auditing. Valuation of economic losses.Violation of Intellectual Property Rights.

Unit-IV: Prevention of Economic Offences - Legislations to deal with different forms of economic offences. RBI Act. SEBI Act. Competition Commission of India Act - Credit card frauds.

Unit-V: Enforcement agencies to deal with different forms of economic offences- International perspectives– measures adopted by FBI and INTERPOL, Case Studies/ histories of economic offences, CBI, DVAC, Lokyukta, Lokpal, PIDPI, ED, DRI.

RECOMMEDED READINGS

1. R.V. Clarke, Situational Crime Prevention: Successful Case Studies, 2nd Edition, Criminal Justice Press, New York (1997).
2. S.P. Green, Lying, Cheating and Stealing: A Moral Theory of White Collar Crime, Oxford University Press, Oxford (2006).
3. G. Geis, R. Meier, L. Salinger (Eds.), White-Collar Crime: Classic & Contemporary Views, Free Press, New York (1995).
4. J. Reiman, The Rich get Richer and the Poor get Prison, Allyn & Bacon, Boston (1998).
5. Indian Audit and Accounts department, Audit of Fraud, Fraud Detection and Forensic Audit, 2007. State Crime Branch, Haryana, Investigation of Economic Offences

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	High	Low	Medium	Low	High	Low	Low	Medium
CO2	High	Medium	Low	Low	High	High	Medium	Low
CO3	High	Low	Medium	Medium	Medium	Medium	Low	Medium
CO4	Medium	Low	Low	Low	High	High	Low	Low
CO5	High	High	Medium	Low	High	Low	Low	Medium
Correlation Levels: Low Medium High								

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	High	Medium	High	Low	Medium
CO2	Medium	Low	High	Low	Medium
CO3	High	High	Low	Medium	Low
CO4	Medium	Low	High	High	Low
CO5	Low	Medium	Low	High	Medium
Correlation Levels: Low Medium High					

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Core 10		BASIC RESEARCH METHODS	4	2	0	4

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- The course aimed at making students understand about the fundamentals of research and to get familiar with various research processes and their significance. Students will also learn about the application of statistical techniques in research work.

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Understand the Basics of research its requirements	K1 K2
CO2	Knowing about Various types of researches.	K1 K2 K4
CO3	Conceptualize and formulate the sampling of data for research purpose	K1 K2 K3 K4
CO4	Prepare and administer of simple tools of date collection and Report writing skills	K1 K2
CO5	Develop the understanding of Simple Statistics	K4 K5 K6
K1: Remember K2: Understand K3: Apply K4:AnalyzeK5: Evaluate K6: Create		

Course Outline:

Unit-I: Introduction-Definitions; Objective of research; Motivation in research; Research methods; Meaning and Epistemology of scientific research; Formulation of the research problem; Research process; Literature survey.

Unit-II: Fundamentals Types of research– Descriptive, Applied, Fundamental, Qualitative, Quantitative, Empirical; Types and Characteristics of Research design; Hypothesis; Definition, Types, Formation and Testing.

Unit-III: Sample and Sampling Population- Sample and Sampling; Types– Probability sampling and non-probability sampling, Criteria for selecting a sampling design;

Unit-IV: Collection of Data and Analysis- Research Tool; Measurements and Scaling; Mode of Collection of Data; Types of Data Collection; Ethics in Criminological Research; Analysis of Data (SPSS).

Unit-V: Application of Statistics-Definitions; Significance; Crime statistics in India; Source of crime statistics; Problems in the use of statistics; Mean, Median and Mode.

RECOMMENDED READINGS:

1. Agarwal, B. (2012). *Basic statistics*. Tunbridge Wells: Anshan.
2. Dane, F. C. (1990). *Research methods*. California: Brooks/Cole Publishing Company.
3. Dixon, B., Bouma, G., & Atkinson, G. (1987). *A handbook of social science research*. New York: Oxford University Press.
4. Freund, R., & Wilson, W. (2010). *Statistical methods* (3rd ed.). Amsterdam: Elsevier
5. Goode, William J., & Hatt P. K. (1952). *Methods in social research*. International student edition. New York: McGraw-Hill.
6. Kothari, C.R (2019) *Research Methodology: Methods and Techniques*, 4th Edition, New Age International Publishers, New Delhi

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	High	High	High	High	Medium	High	High	Medium
CO2	Medium	High	High	High	Low	High	High	Medium
CO3	High	Medium	High	High	Medium	High	Medium	Medium
CO4	Medium	High	Medium	High	Low	High	High	Medium
CO5	High	Low	High	High	Medium	High	High	Medium
Correlation Levels:	Low	Medium	High					

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	High	High	High	High	Medium
CO2	Low	High	High	High	Medium
CO3	Medium	High	Medium	High	Low
CO4	Medium	Low	Low	High	Medium
CO5	Low	Medium	Low	High	Medium
Correlation Levels:	Low	Medium	High		

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Core 11		POLICE INVESTIGATION	4	2	0	4

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- To make the students to assimilate how crimes are investigated as per the CrPC and other laws / methods and also to introduce the various methods of police interrogation of suspects. The course also emphasizes on the need of public police cooperation in crime investigation

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Understand basic methods involving in police investigations	K1 K2
CO2	Familiarize with procedures involved in registering crime case.	K1 K2 K3
CO3	Describe the steps involved in Police Interrogation.	K2
CO4	Understand procedures of investigation of various offences.	K3
CO5	Conceptualise the Public and Police cooperation in crime investigation.	K4 K5
K1: Remember K2: Understand K3: Apply K4: Analyze K5: Evaluate K6: Create		

Course Outline:

Unit-I: Methods of Investigation- Methods of Investigation– Information, Interrogation and instrumentation. Modus Operandi, Police Dogs, Polygraph, Portrait building.

Unit-II: Criminal Procedure of registering information- Recording FIR, Case Diary, Charge sheet, and Dying Declaration. Scene of Crime inspection. Sketching, Collection and preservation of evidence.

Unit-III: Procedure of Interrogation- Examination of Witnesses and Suspects. Techniques of Interrogation and interviewing. Confession, Inquests.

Unit-IV: Investigation of offences- Investigation of Theft, House breaking, Robbery, Murder, Rape, Motor vehicle accidents, Forgery.

Unit-V: Public Participation in Police Investigation- Presentation of evidence and witness in the court of law– Victims Cooperation in investigation– Lapses of Police procedure during prosecution– Violation of human rights during police investigation.

RECOMMENDED READINGS

- Misra K.K. (1987). Police Administration in Ancient India, K.K. Publications.
- Srivastava Aparna (1999). Role of Police in Changing Society, APH Publishing House.
- Guharoy J. T. (1999). Policing in the 21st Century Indian Institute of Public Administration.
- Gupta, Anandswarup (2007). Crime and Police in India, Agra: Sahitya Bhavan.
- Banerjee, D (2005). Central Police Organization, Part I & Part II, New Delhi: Allied Publishers,

Pvt, Ltd.

6. Pandy, Police Administration
7. R.R., Deb, Police Administration

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	High	Low	Medium	Low	High	Low	Low	Medium
CO2	High	Medium	Low	Low	High	High	Medium	Low
CO3	High	Low	Medium	Medium	Medium	Medium	Low	Medium
CO4	Medium	Low	Low	Low	High	High	Low	Low
CO5	High	High	Medium	Low	High	Low	Low	Medium
Correlation Levels: Low Medium High								

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	High	Medium	High	Low	Medium
CO2	Medium	Low	High	Low	Medium
CO3	High	High	Low	Medium	Low
CO4	Medium	Low	High	High	Low
CO5	Low	Medium	Low	High	Medium
Correlation Levels: Low Medium High					

V SEMESTER

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Mini Project		VISIT TO INSTITUTIONS AND SCENE OF CRIME	1	0	7	6

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- The objective of this paper is to familiarize the students of Criminology with the functioning of the various institutions of the criminal justice system and juvenile justice system.

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Familiarizing with basic ideas of various functions of forensic department and private forensic agencies	K1 K2 K3
CO2	Provide field level to exposure to students	K3
CO3	Appreciate the importance and functioning of allied forensic agencies	K4
CO4	Understand importance and confidentiality in forensic services	K5
CO5	Develop a report based on the work experience and knowledge gained	K5
K1: Remember K2: Understand K3: Apply K4:AnalyzeK5: Evaluate K6: Create		

Course Outline:

The students, under the guidance of a teacher may be taken on a Visit to any 4of the following institutions **based on the permissions from the authorities:**

- Forensic Science Laboratory- CFSL, SFSL, DFSL, MFSL
- Private Forensic Science Laboratory
- Scene of Crime
- Forensic Medicine Department
- Police Station
- Magistrates Court
- Fire Station
- District Crime Records Bureau
- Prisons
- Vigilance Home
- Juvenile Justice Board
- Observation Home or Special Home
- Institutions for the treatment of drug addicts
- Simulation of Scene of Crime and other related agencies.

The students will undertake the visits under the guidance of a faculty and will prepare a detailed report for evaluation for the final examination. Along with this each student shall prepare minimum of three case studies (if possible) and present it before the examiners.

Details of the evaluation procedure

- Each candidate has to submit a field visit report and should appear for a public viva voce before their teachers and class mates.
- The students, after their visits will submit a record of their field visits which will be evaluated at two levels.
- At the **first level**, for continuous assessment, the teacher will evaluate the students for 25 marks on the following criteria
 - Regularity in attending the visits (10 marks)
 - Regularity in submission of reports (5 marks)
 - Quality of the reports (10 marks).
- At the **second level**, during the end semester examination, the evaluation will be done by a panel of external and internal examiners, for 75 marks.
 - A public viva voce, where other semester students will be the audience
 - The students will be evaluated on the following criteria
 - Content of presentation (40 marks)
 - Presentation skills (20 marks)
 - Ability to defend the questions (15 marks)

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	High	High	Low	High	High	High	Low	Low
CO2	High	Low	Medium	High	High	Low	Medium	High
CO3	Medium	Medium	Low	High	High	Medium	Low	High
CO4	Low	Medium	Low	Medium	Medium	Medium	Low	Medium
CO5	Low	High	High	Low	Low	High	High	Low
Correlation Levels: Low Medium High								

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	High	High	Medium	Medium	High
CO2	Medium	Low	Low	Medium	Low
CO3	High	High	High	Low	Medium
CO4	Medium	Low	Low	Low	High
CO5	Low	Medium	Medium	High	High
Correlation Levels: Low Medium High					

Course Code	Subj Code	TITLE OF THE COURSE	L	T	P	C
Major Elective		FINGERPRINT EXAMINATION	3	0	1	4

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- The objective of the course is to impart knowledge of fingerprints as important physical evidence at the scene of crime. The students would be able to study the manner in which it is developed, identified, classified, collected, packed and forwarded to the Fingerprint Bureau.

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	To explain the history and development of fingerprints with its importance as evidence.	K1
CO2	To explain the formation of friction ridges, basic fingerprint pattern types and its interpretation. Different individual characteristics of ridges.	K3
CO3	To explain the ridge counting and tracing. Method for making an inked specimen of fingerprint.	K4 K5
CO4	To describe the classification of fingerprints -Henry system, single digit classification and function of Fingerprint Bureau.	K2
CO5	To explain the latent fingerprint and chance fingerprints in criminal investigation, and describe the various methods of development of fingerprints.	K3
K1: Remember K2: Understand K3: Apply K4:AnalyzeK5: Evaluate K6: Create		

Course Outline:

Unit-I: Introduction to Fingerprints: History of Fingerprinting History and Development of Fingerprints, Important Figures in the Field of Fingerprint, Principles of Fingerprints and its Pattern Biological Basis of Fingerprints, Ridge Formation, Fingerprint Patterns, Pattern Areas, General and Individual Characteristics of Fingerprints.

Unit-II: Recording and Examination of Fingerprints: Ridge Counting and Tracing, Filling and Searching. Method for Making an Inked Specimen of Fingerprint. Taking of Fingerprint from Living and Dead Person. Comparison Protocols: Class and Individual Characteristics (Galton's Details), Different Ridge Characteristics

Unit-III: Classification of Fingerprints: Classification of Fingerprints for Comparison Purposes: Pattern Area, Core, Delta, Type Lines, Poroscopy, Edgescopy, Ridge Characteristics, Fingerprint Pattern Types: Essentials and its types of Loop, Arch, Whorl, Composites, Accidental patterns, etc. Classification of Fingerprints: Henry System of Classification, Single Digit Classification

Unit-IV: Developing Fingerprints: Various Methods of Development of Fingerprints: Physical (Black and Grey, Fluorescent and Magnetic Powder Method) and Chemical Methods, Fuming

Methods, Laser Method, Lifting of Latent Fingerprints. Photography of Latent Traces. Fingerprint as Forensic Evidence, Presentation of Fingerprint Evidence and Testimony in Court.

Unit-V: Modern Finger Print Lab & Field Equipment and Chemicals: Alternate Light Source (ALS) i.e. Poly light, Cyanoacrylate Fumigation Chamber, Cyano wand Iodine Fuming apparatus, Electrostatic Dust Lifting Kit (DLK), Electric FP Comparator, Reflective Ultraviolet Imaging System (RUVIS), Fluorescent FP powders for multi-coloured surfaces, SPR (Suspended Particle Reagent, Reagent for wet surfaces.

Practicals:(Internal Evaluation- 25 Marks,apart from CIA)

1. To Record Plain Fingerprints and Identify Ridge Characteristics.
2. To Calculate Henry10-digitClassification.
3. To Develop Fingerprints from various objects using powder Method.
4. To Developing Fingerprint using Ninhydrin Method.
5. To Develop Fingerprint using Iodine Fuming Apparatus.

Internal Evaluation: 25 Marks CIA+ 25 Marks Practical= 50 Marks

External Evaluation: 50 Marks

RECOMMENDED READINGS

1. Bridges, B.C., Vollmar, A. and Munir, M. Criminal Investigation, Practical Fingerprinting, Thumb Impressions, Handwriting, Expert Testimony Opinion Evidence. University Book Agency: Allahabad;(2000).
2. James, S.H. and Nordby, J.J. Forensic Science-An Introduction to Scientific and Investigation Techniques 4 th ed. CRC Press: London;(2015).
3. Nanda, B.B. and Tewari, R.K. Forensic Science in India-A Vision for the Twenty-First Century. Select Publishers: New Delhi;(2001).
4. Saferstein, R. Criminalistics, An Introduction to Forensic Science 6thed. PrenticeHall: New Jersey;(1998).
5. Sharma, B.R. Forensic Science in Criminal Investigation and Trials 3rd ed. Universal Law Publishing: New Delhi;(2001). 6. Chatterjee, S.K.Speculation in Fingerprint Identification. Calcutta; (1981).

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	High	Low	Medium	Low	High	Low	High	Low
CO2	High	High	Medium	Medium	High	Low	High	Low
CO3	High	Medium	Low	Low	High	Medium	High	Medium
CO4	High	High	Low	Low	High	Low	Low	Medium
CO5	High	Low	Low	Low	High	Low	High	Medium
Correlation Levels: Low Medium High								

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Low	Low	Low	Low	Medium
CO2	High	Low	High	Low	Medium
CO3	Medium	High	Medium	Low	Low
CO4	Medium	Low	Low	High	Medium
CO5	Low	Medium	Low	High	Medium
Correlation Levels: Low Medium High					

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Major Practical		TECHNOLOGICAL METHODS IN FORENSIC SCIENCE	1	1	2	2

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- The main objective of the course is to introduce the student's scientific Knowledge of microscopy, chromatography, spectroscopy, and electrophoresis & Forensic Photography as instrumental methods used in forensic investigation.

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Understand about Application of microscopic Instruments in Forensic Investigation	K1 K2
CO2	Apply Chromatographic techniques in Analysis of Evidences in Investigation	K3
CO3	Analyze the Forensic Application of spectroscopic instruments	K4 K5
CO4	Evaluate the efficiency of Electrophoresis techniques in Scientific Examination of Evidences	K5
CO5	Make students any Forensic Photography and its Use in Forensic in crime investigation	K4 K5
K1: Remember K2: Understand K3: Apply K4:AnalyzeK5: Evaluate K6: Create		

Course Outline:

Unit-I: Microscopy-Fundamental working principles and Forensic Significance of Microscope, Compound Microscope, Polarized Light Microscopy, Comparison Microscope, Stereo-zoom Microscope. Transmission Electron Microscope, Scanning Electron Microscope

Unit-II: Chromatographic Techniques– Fundamental working principles and Forensic Significance of Thin Layer chromatography (TLC), High Performance liquid chromatography (HPLC), Gas chromatography (GC).

Unit-III: Spectroscopic Techniques–Fundamental working principles and Forensic Significance of UV Visible Spectroscopy. Atomic Absorption Spectroscopy Atomic Emission, Infrared Spectroscopy, Raman spectroscopy

Unit –IV: Electrophoresis Techniques– Fundamental working principles and Forensic Significance of Affinity electrophoresis, Capillary electrophoresis, Immuno-electrophoresis, Gel Electrophoresis.

Unit-V: Forensic Photography- Basic principles and applications of photography in forensic science. 3D photography, Infrared and ultraviolet photography. Digital photography. Videography. Crime scene and laboratory photography.

Practicals:(Internal Evaluation- 25 Marks,apart from CIA)

1. To determine the concentration of a coloured compound by colorimetry analysis.
2. To carry out thin layer chromatography of ink samples.
3. To carry out separation of organic compounds by paper chromatography.
4. To identify drug samples using UV-Visible spectroscopy.
5. To take photographs of crime scene exhibits at different angles.

Internal Evaluation: 25 Marks CIA+ 25 Marks Practical= 50 Marks**External Evaluation: 50 Marks****RECOMMENDED READINGS**

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

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	High	Low	High	Low	Medium	Low	High	Medium
CO2	Medium	High	High	Medium	Low	Low	High	Medium
CO3	High	Medium	High	Low	Medium	Medium	Medium	Medium
CO4	Medium	High	Medium	Low	Low	Low	High	Medium
CO5	High	Low	High	Low	Medium	Low	High	Medium
Correlation Levels: Low Medium High								

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	High	Low	High	Low	Medium
CO2	High	Low	High	Low	Medium
CO3	Medium	High	Medium	Low	Low
CO4	Medium	Low	Low	High	Medium
CO5	Low	Medium	Low	High	Medium
Correlation Levels: Low Medium High					

VI SEMESTER

Course Code	TITLE OF THE COURSE	L	T	P	C
Core 12	FUNDAMENTALS OF VICTIMOLOGY	4	2	0	4

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- The objective is to impart to the students' knowledge regarding basic concepts about Victimology and role of police and court & victims in criminal justice system. They would also know the importance of various laws related to deliver justice to victim at national and global perspective.

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Understand Development of Victimology and understand the Role of Police and Judiciary in providing remedies for victims of Crime.	K1
CO2	Apply Victimology and understand the concept of national & international concern of Victim of Crime	K3
CO3	Familiarize with international instruments for victims of crime.	K4
CO4	Evaluate standards of UN conventions related to treatment of	K5
CO5	Understand the Human rights aspects of victims of crime and prisoners	K1
K1: Remember K2: Understand K3: Apply K4: Analyze K5: Evaluate K6: Create		

Course Outline:

Unit-I: Victim and Criminal Justice System Victims' involvement with the police and the criminal justice system, Restitution and compensation for crime victims, Victims' rights.

Unit-II: United Nations and Victims the role of the United Nations in establishing victim rights. The emotional and practical needs of crime victims.

Unit-III: Magna Carta for victims Declaration of Basic Principles of Justice for Victims of Crime and Abuse of Power, 1985.

Unit-IV: UN Congresses UN Congresses on Treatment of offenders– Geneva Convention on Treatment of offenders

Unit-V: Human Right violations Human right violations with regard to prisoners Human Rights and Fundamental Freedoms in relation to accused. Prisoner's rights -Landmark Judgements

RECOMMENDED READINGS:

1. Chockalingam, K. 1985, Readings in Victimology, Raviraj Publications, Chennai.
2. Fattah, E.A. 1991. Understanding Criminal Victimization, Scarborough, Ont.: Prentice Hall Canada.
3. Gottfredson, M. R. 1984. Victims Of Crime: The Dimensions Of Risk, Home Office Research And Planning Unit, Report No. 81, London: Hmso.

4. Gupta M.C., Chockalingam K., and JayatilakGuha Roy 2001, Child Victims of Crime-Problems and Perspectives. Gyan Publishing House, New Delhi.
5. Karmen, A. 1990. Crime Victims: An Introduction to Victimology, (2nd Edition). Monterey, Ca: Brooks/Cole.
6. Lurigio, A.J., Skogan, W.G. & Davis, R.C. (1990). Victims of crime: Problems, policies, and programs. London: Sage.
7. Mawby, R.I. And Gill, M.L. 1987. Crime Victims: Needs, Services And The Voluntary Sector, London: Tavistock.
8. Miers, D. 1978. Response to Victimization, Oxford: Milton Trading Estate.
9. Rajan, V.N., 1981, Victimology in India, Allied Publishers Pvt Ltd., New Delhi
10. Shapland, J., Willmore, J. And Duff, P. 1985. Victims in the Criminal Justice System, London: Gower.
11. Snyman, R. (1997). Victim's Rights. In F. Nel & J. Bezuidenhout (Eds.), Policing and Human Rights (pp.155-168). Kenwyn: Juta.
12. United Nations 1985. Declaration of Basic Principles of Justice for Victims Of Crime And Abuse Of Power, New York: United Nations.

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Medium	Low	Medium	Medium	Low	Low	Low	High
CO2	High	Low	High	Medium	High	Low	Low	High
CO3	High	Medium	High	Medium	Medium	Medium	Low	High
CO4	Medium	Medium	Medium	High	High	Medium	Low	High
CO5	Medium	Low	Medium	High	Medium	Medium	Low	High
Correlation Levels:	Low	Medium	High					

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	Medium	Low	Low	Medium	Medium
CO2	Medium	Medium	Medium	High	Low
CO3	Medium	Medium	Medium	High	High
CO4	High	High	Medium	High	Low
CO5	Medium	High	Medium	High	Medium
Correlation Levels:	Low	Medium	High		

VI SEMESTER

Course Code	TITLE OF THE COURSE	L	T	P	C
Core 13	LOCAL AND SPECIAL LAWS	4	2	0	4

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- To make students get acquainted with various elements of distinctive laws and legal importance in Indian criminal justice system. The students will get knowledge about the role of state and central laws in prevention and detection of crime. The course is mainly intended to prepare the students to identify the applications of respective laws during administration of justice in real time society.

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Understand several legislations dealing with prevention of crime in Tamil Nadu	K2
CO2	Familiarize with Prohibition laws of Tamil Nadu	K1 K3
CO3	Understand the nature and essential principles of Tamil Nadu Police Act and Other relevant laws.	K4 K5
CO4	Acquaint with Laws related to Explosives Narcotic substances, Explosives	K3
CO5	Critically Analyzing various social legislations and their importance.	K4
K1: Remember K2: Understand K3: Apply K4:AnalyzeK5: Evaluate K6: Create		

Course Outline:

Unit-I: Tamil Nadu Acts related to prevention of crime -Tamil Nadu Prevention of Dangerous Activities of Bootleggers, Drug offences, Goondas, Immoral traffic offenders and Slum Grabbers Act, 1982.

Unit-II: Prohibition act Tamil Nadu Property (Prevention of Damage and Loss) Act 1992, The Tamil Nadu Prohibition Act.

Unit-III: The Police Act 1861, The Motor Vehicles Act, 1988, The Arms Act1959.

Unit-IV: Explosives and narcotics acts: The Indian Explosive Act, 1884, The Explosives Substances Act, 1908, The Narcotic Drug and Psychotropic substances Act-1985.

Unit-V: Social legislations: The Protection of Civil Rights Act1, 1955, The Prevention of Atrocity Act, 1989, The Dowry Prohibition Act2,1961. The Eve Teasing Act, the Ragging Act. POCSO Act, PoSH Act. Environment Protection Laws- Land, Air, Water, Noise

RECOMMENDED READINGS:

1. Sambandam – Handbook of Criminal Law and Minor Acts (Tamil Nadu) – Deccan Publications, Chennai -83
2. Sambandam – Handbook of Criminal rules of practices with importance PSO – Deccan Publications, Chennai –83

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	High	Low	Medium	Medium	Low	Low	Low	High
CO2	High	Low	High	Medium	High	Low	Low	High
CO3	High	Medium	High	Medium	Medium	Medium	Low	High
CO4	Medium	High	Medium	High	High	Medium	Medium	Low
CO5	Medium	Low	Medium	High	Medium	Medium	Low	High
Correlation Levels:	Low	Medium	High					

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	High	Low	Low	Medium	Medium
CO2	Medium	Medium	Medium	High	Low
CO3	Medium	Medium	Medium	High	High
CO4	High	High	Medium	High	Low
CO5	Medium	High	Medium	High	Medium
Correlation Levels:	Low	Medium	High		

VI SEMESTER

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Core 14		FUNDAMENTALS OF FORENSIC MEDICINE & TOXICOLOGY	2	0	2	4

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- To impart knowledge of Forensic Medicine and Toxicology in students so that the he/she can learn about the medico legal aspects of crime investigation especially cases involving death and Injury. The course also intended to develop a sense of scientific thinking in student about various toxicological evidences and their forensic examination for the cause of criminal justice.

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Understand the Basic concept of forensic medicine & Legal aspects related with it.	K1
CO2	Identify wounds and injuries	K3
CO3	Analyze the physiological aspects of death and its forensic relevance.	K5
CO4	Understand Toxicology and its significance in detection of crime.	K2
CO5	Apply chemical and biological techniques in analysing toxicological evidences.	K4
K1: Remember K2: Understand K3: Apply K4:AnalyzeK5: Evaluate K6: Create		

Course Outline:

Unit-I: Forensic Medicine- Definition, Historical Development. Inquest – Police, Magistrate, Medical Examiner system. Consent – meaning and types, Medico legal documents. Euthanasia.

Unit-II: Injuries– Meaning, Types of Injury: Mechanical or physical Injuries - Chemical Injuries, Miscellaneous. Determination of age and sex by skeleton.

Unit-III: Death– Meaning,Types – Somatic, Cellular.Modes of death, Manner of death, Post Mortem Changes– Immediate, Early, Late. Autopsy: Medico legal Autopsy - Meaning and Objectives, Post Mortem Report as evidence. Identification of unknown person– dead bodies and remains of person, exhumation.

Unit-IV: Introduction to Forensic Toxicology– Definition,Classification of poisons. Routes of Administration of poisons. Action of poisons. Factors are modifying the actions of poisons. Post-mortem changes in death due to poison– Poisonous bites – Collection and Preservation of Toxicological evidence– Instrumental Techniques used in Identification of poisons -.CG-MS, RIA, Case study.

Unit-V: Samples required in Toxicological analysis- Selection of Post-mortem samples and reference to particular class of poison, Classes of samples (Biological and Non-biological), Methods of sample collection (Living and Dead person), Classification of matrices, choice of preservatives,

containers and storage conditions. Alternative specimens: Hair analysis, Drugs in oral fluid, Detection of drugs in sweat etc. Analysis of exhumed and decomposed bodies.

Practicals:(Internal Evaluation- 25 Marks,apart from CIA)

1. To Identify bones from given skeleton.
2. To Identify type of Injury from given Forensic model.
3. To identify metallic poisons.
4. To identify organic poisons.
5. Alcohol Intoxication & analysis.

Internal Evaluation: 25 Marks CIA+ 25 Marks Practical= 50 Marks

External Evaluation: 50 Marks

RECOMMENDED READINGS:

1. K. Smyth, the Cause of Death, Van Nostrand and Company, New York (1982).
- 2.M. Bernstein, Forensic odontology in, Introduction to Forensic Sciences, 2nd Ed., W.G. Eckert (Ed.), CRC Press, Boca Raton (1997).
3. J. Dix, Handbook for Death Scene Investigations, CRC Press, Boca Raton (1999).
- 4.H.B. Baldwin and C.P. May in, Encyclopaedia in Forensic Science, Volume 1, J.A. Siegel, P.J. Saukko and G.C. Knupfer (Eds.), Academic Press, London (2000).
5. V.J. Geberth, Practical Homicide Investigation, CRC Press, Boca Raton (2006).
6. T. Bevel and R.M. Gardner, Bloodstain Pattern Analysis, 3rd Edition, CRC Press, Boca Raton (2008).
7. W.J. Tilstone, M.L. Hastrup and C. Hald, Fisher’s, Techniques of Crime Scene Investigation, CRC Press, Boca Raton (2013).

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	Medium	High	High	Low	Medium	High	High	Low
CO2	Low	High	Low	Medium	Low	High	High	Medium
CO3	Medium	Medium	Medium	Low	Low	Medium	High	Low
CO4	Low	Low	Medium	Low	Low	High	Medium	Low
CO5	Medium	Low	High	High	Low	High	High	High
Correlation Levels:	Low	Medium	High					

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	High	High	Medium	Medium	High
CO2	Low	Medium	Low	Medium	Low
CO3	High	High	High	Low	Medium
CO4	Low	Medium	Low	Low	High
CO5	Medium	Low	Medium	High	High
Correlation Levels:	Low	Medium	High		

VI SEMESTER

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Core 15		FORENSIC SEROLOGY	3	1	1	4

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- The Course aims to provide students with brief overview of the various sections of importance of biological fluids including blood as evidence for criminal investigation. It details about the difference between secretions and excretions of body fluids and importance of genetic markers for practical skill development.

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Understand the importance of biological fluids in criminal investigation	K1
CO2	Apply the knowledge regarding several tests used in Blood Analysis and Grouping of blood stains.	K2
CO3	Acquire, understand and apply the basic knowledge of Instrumental Techniques and Methods used in Blood Analysis.	K3
CO4	Understand the importance of genetic markers.	K4
CO5	Discuss the importance of DNA Fingerprinting in Forensic science and explain the genetic basis of DNA Fingerprinting.	K5
K1: Remember K2: Understand K3: Apply K4: Analyze K5: Evaluate K6: Create		

Course Outline:

Unit-I: Forensic Serology– Definition, Introduction, basic concepts- antigens, antibodies (Polyclonal and monoclonal), Affinity, avidity, Antigen-antibody binding reactions- primary and secondary. Blood: Composition, Properties of Human Blood, Collection, Preservation and Packing of Blood Evidence.

Unit-II: Forensic Examination of Blood- Identification (Preliminary and Confirmatory tests), Species of Origin. Individualization: Blood Grouping, Enzyme Typing.
Instrumental Technique: Spectrophotometric Method, Electrophoresis Methods: Determination of Species of Blood: Precipitin Test (Ring test, Immuno-diffusion, Crossed-Over Electrophoresis and others methods

Unit-III: Blood Pattern Analysis (BPA)– Introduction, Bloodstain Classification- Linear and Nonlinear spatter, Examination of Impact of Angle, directionality of Blood, Size and Shape. Interpretation of Bloodstain on Clothing and Footwear, Documentation and Photography for Bloodstain Pattern Analysis.

Unit-IV: Analysis of Biological Fluids- Composition and Examination of Biological Fluids such as Saliva, Semen, Vaginal Fluid, Urine and Sweat, Protection of Biological Evidences, Collection, Packaging, Preservation & Transportation of Biological Evidences.

Unit-V: DNA Profiling- Definition, History of DNA Typing, DNA typing systems: RFLP analysis, PCR amplifications sequence polymorphism, analysis of SNP, Y-STR, Mitochondrial DNA. Forensic significance of DNA profiling- applications in disputed cases, child swapping, missing person's identity, civil immigration, wildlife and mass disaster victim identification.

Practicals:(Internal Evaluation- 25 Marks,apart from CIA)

1. To identify blood stains by presumptive Test
2. To identify blood stain by Confirmative Tests
3. Test To identify semen stains.
4. To identify saliva stains
5. Separation of DNA by Agarose gel electrophoresis.

Internal Evaluation: 25 Marks CIA+ 25 Marks Practical= 50 Marks

External Evaluation: 50 Marks

RECOMMENDED READINGS

1. Medical immunology by Danniell P. Stites, Abba I. Jerr, Tristram G. Parstow, Ninth edition; Prentice Hall International Inc. 1997.
2. Stern, C. (1964): Principles of Human Genetics, Freeman, California.
3. Chatterjee, C. C-(1975) Human Physiology.
3. Beerman, K.E.: Blood Group Serology, Churchill, and Lincoln, P.J. (1988)
4. Race, R.R, and Sanger, R. (1975): Blood Groups in Man. Blackwell Scientific, Oxford.
5. Saferstein, R. (1982): Forensic Science Handbook, Vols. I, II, & III, Prentice Hall New Jersey.
6. Curry, A. S. (1965): Methods of Forensic Science, Vol IV, Interscience, New York.
7. Barris, H. and Hopkinson, D.A. (1976): Handbook of Enzyme, Electrophoresis Elsevier, North, Holland, New York.
8. Gilblet, E. (1969): Markers in Human Blood, Davis, Pennsylvania
9. Culliford, B.E. (1971) The Examination and Typing of Blood Stains, US Deptt. of Justice, Washington
10. Kirby: DNA Fingerprinting Technology.
11. Furley, M.A. & Harrington, J.J. (1991) Forensic DNA Technology
12. National Research Council (1992): DNA Technology in Forensic Science, Washington DC National Academy Press.
13. Chowdhari, S. (1971): Forensic Biology, B P R & D, Govt, of India.
14. Dunsford, I and Bowley, C. (1967): Blood Grouping Techniques, Oliver & Boyd, London
15. Bokert, W. G. & James, S. H. (1989) Interpretation of Blood Stain, Evidence, Elsevaier, New York.
16. Erikson: Blood Group Serology.
17. DNA structure and functions by Richard R. Sinden; Academic Press, Inc. 1994. 20. DNA Structure and functions by Richard R. Sinden; Academic Press, Inc. 1994.
18. DNA Profiling and DNA fingerprinting; Edited by Jorg T. Epplen and Thomas Lubjuhn; Birkhauser Verlag, Switzerland, 1999.
19. Forensic DNA Profiling Protocols edited by Patrick J. Lincoln and Jim Thomson; Humana Press, Inc. 1998.
20. DNA and other Polymorphism in Forensic Science by Henry C. Lee and R.E. Gaensslen; Year book Medical Publishers, Inc. 1990.
21. DNA Technology in Forensic Science by committee on DNA Technology in Forensic Science, Board on Biology, Commission on Life Sciences, National Research council; National Academy Press, Washington, D.C. 1992.

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	High	High	High	High	Low	High	Medium	High
CO2	High	High	High	High	Medium	High	Medium	High
CO3	Medium	High	Medium	Medium	Low	High	Low	High
CO4	High	Medium	Low	Medium	Low	Medium	Low	Medium
CO5	High	High	High	High	High	Low	High	Low
Correlation Levels: Low Medium High								

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	High	High	Medium	Low	High
CO2	High	Low	Low	Medium	High
CO3	Medium	High	High	Low	High
CO4	High	Low	Low	Low	Medium
CO5	High	Medium	Medium	High	Low
Correlation Levels: Low Medium High					

VI SEMESTER

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Allied		FORENSICS ANTHROPOLOGY	2	0	0	2

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- *The students will be exposed to the importance of forensic anthropology in identification of persons. Different techniques of facial reconstruction and their forensic importance, appreciate significance of somatoscopy and somatometry.*

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Understand importance and need for forensic anthropology	K1
CO2	Describing the steps and classification of human by race, age, body structure and etc.	K2 K3
CO3	Familiarize with procedures involved in facial reconstruction.	K4 K5
CO4	Understand the significance of somatoscopy in forensic anthropology.	K5
CO5	Apply somatometry in forensic anthropology and investigation.	K5
K1: Remember K2: Understand K3: Apply K4: Analyze K5: Evaluate K6: Create		

Course Outline:

Unit I: Basics of Forensic Anthropology

Significance of Forensic Anthropology- Scope of forensic anthropology. Study of human skeleton. Nature, formation, and identification of human bones. Determination of age, sex, stature from skeletal material.

Unit II: Personal Identification

Personal Identification– Somatoscopy and Somatometry - Somatoscopy – observation of hair on head, forehead, eyes, root of nose, nasal bridge, nasal tip, chin, Darwin’s tubercle, ear lobes, supra-orbital ridges, physiognomic ear breadth, circumference of head. Scar marks and occupational marks.

Unit III: Somatometry

Somatometry – measurements of head, face, nose, cheek, ear, hand and foot, body weight, height - Indices - cephalic index, nasal index, cranial index, upper facial index.

Unit IV: Facial Reconstruction

Facial Reconstruction- Portrait Parle / Bertillon system. Photofit/ identity kit. Facial superimposition techniques- Craniofacial superimposition techniques, photographic superimposition, video superimposition.

Unit V: Superimposition

Roentgenographic superimposition. Use of somatoscopic and craniometric methods in reconstruction - Importance of tissue depth in facial reconstruction - Genetic and congenital anomalies – causes, types, identification and their forensic significance.

RECOMMENDED READINGS:

M.Y. Iscan and S.R. Loth, The scope of forensic anthropology in, Introduction to Forensic Sciences, 2nd Ed., W.G. Eckert (Ed.), CRC Press, Boca Raton(1997).

D. Ubelaker and H. Scammell, Bones, M. Evans & Co., New York(2000).

S. Rhine, Bone Voyage: A Journey in Forensic Anthropology, University of Mexico Press, Mexico(1998).

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	High	High	High	Low	Medium	High	High	Low
CO2	Low	High	Low	Medium	Low	High	High	Medium
CO3	Medium	Medium	Medium	High	High	Medium	High	Low
CO4	Low	Low	Medium	Low	Low	High	Medium	Low
CO5	Medium	Low	High	High	Low	High	High	High
Correlation Levels:	Low	Medium	High					

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	High	High	Medium	Medium	High
CO2	High	High	High	High	Low
CO3	High	High	High	Low	Medium
CO4	Low	Medium	Low	Low	High
CO5	Medium	Low	Medium	High	High
Correlation Levels:	Low	Medium	High		

VI SEMESTER

Course Code	Sub Code	TITLE OF THE COURSE	L	T	P	C
Major Project		DISSERTATION	1	0	6	10

L: Lecture T: Tutorial P: Practical C: Credits

Course Objectives:

The main objectives of this course are

- To expose the students to the steps involved in criminological/ scientific research. To make the students to understand basic statistical methods. To make the students to collect, collate and interpret data and make inferences using statistical analysis or prepare case studies.

Course Outcomes (COs):

At the end of this course of study, the student will be able to

CO No.	Course Outcomes	Cognitive Levels
CO1	Learn Practical Experience in Conductive research	K1
CO2	Understand Applied Research	K3
CO3	Understanding types of Sampling & Statistical Usage	K4 K5
CO4	Evaluate usage of various Tool of data collection	K2
CO5	Learn References and Technical Report writing	K5
K1: Remember K2: Understand K3: Apply K4: Analyze K5: Evaluate K6: Create		

Course Outline:

All the students are expected to take this paper compulsorily. The Objectives of this paper is to provide Opportunity for the students to make use of their knowledge regarding the various steps involved in conducting a research project under the supervision of a guide. The faculty at various stages of research will assist the students. The students will be encouraged to select their research problems relevant to the field of Criminology and Forensic Science. Students will conduct the research in Individual or Group. The completion of the research project by the students under the supervision of the faculty would provide with sufficient training to take up research related assignments in governmental and voluntary organizations within Tamil Nadu and India.

Or

The dissertation will be based on a research topic in Forensic Science/Criminology. The topic will be assigned in consultation with police and forensic science establishments, giving due consideration to the problem areas faced by these institutions. The students is be expected to undertake extensive field work, in collaboration with forensic laboratories, police or any other agencies including private agency.

Or

Case Studies- At least 3 including one police study (Realtime).

Details of the evaluation procedure

- Each candidate has to submit a dissertation / case studies report and should appear for a public viva voce before their teachers and class mates.
- The students, after their research/ case studies will submit a record of their work which will be evaluated at two levels.

- At the **first level**, for continuous assessment, the teacher will evaluate the students for 25 marks on the following criteria
 - Regularity in completing the assigned works (10 marks)
 - Regularity in submission of reports (5 marks)
 - Quality of the reports (10 marks).

- At the **second level**, during the end semester examination, the evaluation will be done by a panel of external and internal examiners, for 75 marks.
 - A public viva voce, where other semester students will be the audience
 - The students will be evaluated on the following criteria
 - Content of presentation (40 marks)
 - Presentation skills (20 marks)
 - Ability to defend the questions (15 marks)

Mapping of Course Outcomes to Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	High	High	Low	High	High	High	Low	Low
CO2	High	Low	Medium	High	High	Low	Medium	High
CO3	Medium	Medium	Low	High	High	Medium	Low	High
CO4	Low	Medium	Low	Medium	Medium	Medium	Low	Medium
CO5	Low	High	High	Low	Low	High	High	Low
Correlation Levels: Low Medium High								

Mapping of Course Outcomes to Programme Specific Outcomes (PSOs)

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	High	High	Medium	Medium	High
CO2	Medium	Low	Low	Medium	Low
CO3	High	High	High	Low	Medium
CO4	Medium	Low	Low	Low	High
CO5	Low	Medium	Medium	High	High
Correlation Levels: Low Medium High					