DEGREE OF BACHELOR OF SCIENCE
CHOICE BASED CREDIT SYSTEM

Syllabus for
B.Sc., Forensic Science
(SEMESTER PATTERN)

For Candidates admitted in the Colleges affiliated to
Periyar University from 2020-2021 onwards
REGULATIONS:

1. Eligibility for Admission:
Candidate for admission to the first year degree of Bachelor of Science Course shall be required to have passed the Higher Secondary Examination (Academic or vocational stream with Physics/Chemistry/Botany/Zoology/Biology under higher secondary board of examination stream) conducted by the Government of Tamilnadu or any other examination accepted by the syndicate of Periyar University, subject to such condition as, may be prescribed thereto, are permitted to appear and qualify for B.Sc, Degree in Forensic Science.

2. Eligibility for award of degree:
A Candidate shall be eligible for the award of degree only if he/she has undergone, the prescribed course of study in a college affiliated to the University for a period not less than three academic years, comprising six Semester and passed the examination prescribed and full filled such condition as have been prescribed there for

3. Course of Study
   a. Objective of the Programme:
      i. To provide the basic and essential knowledge regarding various activities undertaken and necessary to run socially responsible business organization
      ii. To impart certain basis skills and aptitude which will be useful in taking up any particular useful in taking up any particular activity in Hospitality Industry.
      iii. To develop the personality so as to become responsible citizen with greater awareness about the Indian society and its culture.
      iv. To provide a global view of several multinational hotel and their functions which Support hotel systems.
   b. The Programme of study shall consist of foundation courses, skill based elective courses (SBEC) and non-major elective course.
   c. The non major elective courses (NMEC) offered by a department is meant for students studying other Programme (i.e.) FS students have to study NMEC offered by other departments.
The course of study shall comprise instruction in the following subjects according to syllabus and books prescribed from time to time.
## B.Sc (Forensic Science)

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<th>Part</th>
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**SEMMESTER – IV**

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*Students should submit their online course certificates at the end of the VI semester.

**The students should undergo compulsory one month internship programs during the III semester vacation. At the end of the program, students should submit the report.*
# B.Sc (Forensic Science)

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**Total credit** : 148

**Total Marks**

- **CIA** : 915
- **EA** : 2885

**Total** : 3800
B.Sc. FORENSIC SCIENCE

Theory - Question Paper Pattern

Question paper pattern-75 marks

Time: 3 hrs

Max.Marks: 75

Minimum pass : 30

Part-A: 15x 1 = 15
Choose the correct answer
(Answer all Questions) (Three Questions from each unit)

Part-B: 2x 5 = 10
Paragraph pattern
(Answer any two Questions)
(One question from each unit) Answer any two questions out of five questions

Part-C: 5x 10 = 50
Essay pattern
(Answer all Questions)
(One question from each unit) with internal choice

Practical-Question Paper Pattern

Time: 6hrs

Marks : 100

External marks : 60

Minimum pass : 24

Record - 10 marks

Written procedure - 10 marks

Practical - 40 marks
5. REQUIREMENT FOR PROCEEDINGS TO NEXT SEMESTER
Candidates shall be eligible to go to next semester, only if they satisfy the condition prescribed by the syndicate from time to time.

6. PASSING MINIMUM
A candidate shall be declared to have passed in each paper; If He/ She secures not less than 40% of the Marks prescribed for the examination. He/ She shall be declared to have passed the whole examination if he/she pass in all the papers as per the scheme of Examination eligible to go to next semester only if they satisfy the condition prescribed by the syndicate from time to time.

7. CLASSIFICATION OF SUCCESSFUL CANDIDATES
Successful candidates, passing all the examinations securing the marks prescribed for, core, Allied, SBEC and NMEC course together shall be declared to have passed the examination in First / Second / Third class.
Candidates who obtained 75% of marks and above shall be deemed to have passed the Programme with distinction, provided they passed the examination at the First appearance

8. RANKING
Candidate who passes all examination prescribed for the course in the first appearance only is eligible for ranking.

9. MAXIMUM DURATION FOR THE COMPLETION OF THE U.G PROGRAMME
The maximum duration for completion of U.G programme shall not exceed twelve semesters.

10. COMMENCEMENT OF THE REGULATION
The regulation shall take effect from the academic year 2020-2021, i.e. for students who are admitted to the first year of the programme, during the academic year 2020-2021 and thereafter.

11. TRANSITORY PROVISION
Candidates who were admitted to the U.G Programme of study before 2020-2021 shall be permitted to appear for the examination under those regulation for the period of three years i.e. up to and inclusive of the examination of April / May 2024. Thereafter they may permitted to appear for the examination only under the regulation there in force.
SEMESTER-I

CORE – I

INTRODUCTION TO FORENSIC SCIENCE

UNIT I History of Development of Forensic Science in India
Functions of forensic science. Historical aspects of forensic science.
Definitions and concepts in forensic science. Scope of forensic science.
Need of forensic science. Basic principles of forensic science. Frye case and Daubert standard.

UNIT II Tools and Techniques in Forensic Science
Branches of forensic science. Forensic science in international perspectives, including set up of INTERPOL and FBI.

UNIT III
Data depiction. Report writing.

UNIT IV Organizational set up of Forensic Science Laboratories in India

UNIT V

BOOKS FOR STUDY AND REFERENCES

SEMESTER-I
CORE – II
CRIME AND SOCIETY

UNIT I Basics of Criminology
Definition, aims and scope. Theories of criminal behavior – classical, positivist, sociological. Criminal anthropology.
Criminal profiling. Understanding modus operandi. Investigative strategy.
Role of media.

UNIT II Crime
Elements, nature, causes and consequences of crime. Deviant behavior. Hate crimes, organized crimes and public disorder, domestic violence and workplace violence.

UNIT III White collar crimes
Psychological Disorders and Criminality. Situational crime prevention.

UNIT IV Criminal Justice System
Broad components of criminal justice system. Policing styles and principles. Police’s power of investigation.

UNIT V

Human rights and criminal justice system in India.

BOOKS FOR STUDY AND REFERENCES

SEMESTER-I
ALLIED - I
PRINCIPLES OF CRIMINOLOGY

UNIT I Introduction
Criminology, Crime – definitions; historical perspectives; nature, origin and scope. Criminology as a social science, relations with other social sciences, medicine & law.

UNIT II Schools of Criminology
Pre-classical, Classical, Neo-Classical, Positive, Cartographic, Biological and Constitutional Schools.

UNIT III Criminal Justice System
Structure of Criminal Justice System in India. Role of legislature, police, judiciary and prison system in Criminal Justice; co-operation and co-ordination among the various sub systems of criminal justice system.

UNIT IV Sociological Theories
Differential Association Theory, Group Conflict Theory, Containment Theory, Subculture Theory, Labeling Theory

UNIT V Psychological Theories
Theories of personality – Freud, Theories of learning – Pavlov, Skinner, Thorndike, Theories of Motivation

BOOKS FOR STUDY AND REFERENCES

SEMMESTER – II
CORE-III
FORENSIC PSYCHOLOGY

UNIT I Basics of Forensic Psychology
Definition and fundamental concepts of forensic psychology and forensic psychiatry. Psychology and law. Ethical issues in forensic psychology.
Assessment of mental competency. Mental disorders and forensic psychology.

UNIT II
Psychology in the courtroom, with special reference to Section 84 IPC.

UNIT III Psychology and Criminal Behavior
Psychopathology and personality disorder. Psychological assessment and its importance.
Serial murderers. Psychology of terrorism.

UNIT IV
Biological factors and crime – social learning theories, psycho-social factors, abuse.
Juvenile delinquency – theories of offending (social cognition, moral reasoning).
Child abuse (physical, sexual, emotional), juvenile sex offenders, legal controversies.

UNIT V Detection of Deception
Tools for detection of deception – interviews, non-verbal detection, statement analysis, voice stress analyzer, hypnosis.
Polygraphy – operational and question formulation techniques, ethical and legal aspects, the guilty knowledge test.
Narco analysis and brain electrical oscillation signatures – principle and theory, ethical and legal issues.

BOOKS FOR STUDY AND REFERENCES

SEMESTER – II
CORE-IV
CRIMINAL LAW

UNIT I Law to Combat Crime
Classification – civil, criminal cases. Essential elements of criminal law. Constitution and hierarchy of criminal courts.

Criminal Procedure Code. Cognizable and non-cognizable offences.

Bailable and non-bailable offences.

UNIT II Indian Penal Code
Sentences which the court of Chief Judicial Magistrate may pass.

Summary trials – Section 260(2).

Judgements in abridged forms – Section 355.


Sections 375 & 377 and their amendments.

UNIT III
Indian Penal Code pertaining to offences against property Sections – 378, 383, 390, 391, 405, 415, 420, 441, 463, 489A, 497, 499, 503, 511.


Sections 32, 45, 46, 47, 57, 58, 60, 73, 135, 136, 137, 138, 141.

Section 293 in the code of criminal procedure.

UNIT IV Constitution of India
Preamble, Fundamental Rights, Directive Principles of State Policy. – Articles 14, 15, 20, 21, 22, 51A.

UNIT V Acts Pertaining to Socio-economic and Environmental Crimes
Dowry Prohibition Act.

BOOKS FOR STUDY AND REFERENCES
SEMESTER – II
ALLIED – II
VIGILANCE AND SECURITY MANAGEMENT

UNIT I Introduction
Vigilance: Meaning and Scope, Role of Vigilance in processing disciplinary enquiry cases, Investigation of mediclaims and other corruption cases. State and Central Vigilance Commissions. Security: Developments in India, Role of CISF in Industrial Security.

UNIT II Dynamics of Security
Security aspects- security of man, material, information such as file, commercial formula, technical information, design sketches, models, cassettes etc. Information security – Computer hardware, software and liveware security, Computer based financial frauds and computer viruses and worms, Current and future danger posing corporate executive.

UNIT III Types of Security Management

UNIT IV Private Security and related laws

UNIT V Managing a Security Organization

BOOKS FOR STUDY AND REFERENCES
UNIT I

UNIT II
Role of Forensic Medicine in court – Meaning and Scope Inquest Nature and Powers of Criminal Courts in India Procedure of calling a witness to a court.
Procedure in court: Oath Examination – in –chief, Cross Examination and Re-Examination Medical Evidence Medico legal Reports and Dying declaration Doctor as medical/ Expert witness

UNIT III
Autopsy Medical Autopsy: Introduction and objectives, rules for medico legal autopsy, external and internal examination of body, collection of Ante-mortem and post-mortem samples, autopsy report.

UNIT IV
Thanatology- Definition of death. Types of death(somatic and molecular).Medico-legal aspects of death – Causes of death such as asphyxia(strangulation, hanging, drowning etc), electrocution, thermal trauma, heat burns, starvation, natural death, sudden death etc. Changes after death (immediate, early and late changes) and Determination of time since death.
UNIT V


BOOKS FOR STUDY AND REFERENCES
2. Practical Aspects of Forensic Medicine, Dr T.D. Dogra Dr. AD Aggrawal jaypee publishers,2014.
SEMESTER – III
CORE - VI
TECHNOLOGY METHODS IN FORENSIC SCIENCE

UNIT I
GC: Theoretical principles, instrumentations and technique, columns, stationary phases, detectors, Forensic applications.
HPLC: Theory, Instrumentation, Technique, column, detectors, LC-MS, Forensic applications.
TLC and HPTLC: Theory, Instrumentation, Technique and Forensic applications.

UNIT II
Microscopy- Stereomicroscope, Comparison microscope, Electron Microscopy TEM, SEM and their forensic Application.

UNIT III
Electrophoresis Technique: General principles, Factors affecting electrophoresis, Sodium dodecylsulphate (SDS) polyacrylamide gel electrophoresis, Agrose gel electrophoresis, Gel immunediffusion, Immuno- electrophoresis.

UNIT IV
1. Basic Spectroscopy-- Introduction, electromagnetic radiations, full range,
A. UV-Visible – principal absorbance, transmittance, Beer-Lambert’s laws and its applications of UV-Visible
B. IR-molecular spectra, electronics, vibrational, rotational spectra. Principles, diagrams, working and construction, uses and applications and IR spectroscopy

UNIT V
1. AAS- Introduction, Basic principles, Instrumentation and Techniques, Forensic applications.
2. MASS Spectroscopy- Principle, Instrumentation and working, Forensic applications.
BOOKS FOR STUDY AND REFERENCES
SEMESTER – III
ALLIED - I
HUMAN RIGHTS AND CRIMINAL JUSTICE ADMINISTRATION

UNIT I Introduction
Human Rights- Definition, Theories, forms / types of Human Rights

UNIT II National and International Instruments
UDHR, ICCPR, ICESCR, Constitution of India- Part III and Part IV, Protection of Human Rights Act 1993

UNIT III Human Rights and Criminal Justice Agencies
Custodial violence, Handcuffing, Rights of the accused, Rights of prisoners, Rights of victims of human rights violations

UNIT IV Human Rights Violations
Human rights violations of Women, Children, Minorities, Refugees, SC/STs, Elderly people

UNIT V Human Rights Agencies
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

BOOKS FOR STUDY AND REFERENCES

SEMESTER – III

NMEC-I

BASICS OF FORENSIC SCIENCE

UNIT I

Crime: Definition of crime, characteristics of crime, classification of crimes, A brief ideas about White collar crime, professional crime, organized crime, present scenario of crime in India.

UNIT II


Physical evidence, Definition, classification of physical evidence, types of physical evidences, sources of physical evidence, signification and value of physical evidence, linkage between crime scene, victim and criminal, study of some special crime scene such as mass disaster, terror attack, geological scene and explosive etc.

UNIT III

Basics of Forensic Science: Introduction Global History and Scope, Need and Development Principles, emphasizing on Specific contribution of Scientists in the field of Forensic Science.

UNIT IV

Domains in Forensic Science: Branches of Forensic Science, Police officers, Prosecution, Judicial Officers and Medico legal expert etc. Role and Qualifications of forensic scientists. Code of conduct for forensic scientists, Ethical issue in Forensic Science, professional standards for practice of Criminalistics, sanction against expert for unethical conduct.

UNIT V

Organization set up of Forensic Science Laboratory: Structure and function of State and regional Forensic Science Laboratory, Central Forensic Science Laboratory and facility provided, Mobile Forensic Science Laboratory, Directorate of Forensic Science Service.
Police and Forensic scientist relationship, role of FSL in criminal investigation, relationship between forensic expert and judiciary officer, Importance of FSL, National and International scenario of FSL, facilities provided in forensic science laboratory.

**BOOKS FOR STUDY AND REFERENCES**

UNIT I Motor Vehicle Accidents

UNIT II

UNIT III Accident Analysis

UNIT IV
Biomechanics of injuries. Hit and run investigations. Trace evidence at accident sites. Methods of collection trace evidences in vehicular accident cases and methods of preserving skid marks and tyre marks.

UNIT V Tachographs

BOOKS FOR STUDY AND REFERENCES
SEMESTER – IV
ALLIED – II
CYBER CRIMES

UNIT I Computer and Internet basics

UNIT II Cyber Crime
Cyber crime: Definition – History and evolution, Types and forms of cyber crimes - Malicious Code - Computer Viruses, Computer Worms, Computer Trojans, Web Hacking, Foot printing, Port Scanning, E-Shoplifting, Web Defacement, Denial of Service Attacks, Manipulating Cookies - Email Hacking: Email Hacking using Packet Sniffers, Email Hacking & Phishing, Email Frauds & Phishing, Email Bombing Email Hijacking - Social Engineering and cyber crime.

UNIT III Cyber Crime Investigation

UNIT IV Cyber Law
Case studies USA, UK and India. Cyber terrorism - Prevention and detection of cyber crime – Cyber Policing - Current statutes in India: Penalties & Offences under the Information Technology Act, 2000, Offences under the Indian Penal Code, 1860, Issues relating to investigation and adjudication of cyber crimes in India - Digital evidence

UNIT V Intellectual property rights
BOOKS FOR STUDY AND REFERENCES


SEMESTER – IV
SBEC-II
INTRODUCTION TO BIOMETRY

UNIT I Fundamental Aspects
Definition, characteristics and operation of biometric system. Classification of biometric systems – physiological and behavioral.

UNIT II

UNIT III Introduction to Biometry
Positive and negative identification. Types of error after positive and negative identification. Performance measures used in biometric systems – FAR, FRR, GAR, FTA, FTE and ATV. Biometric versus traditional technologies.

UNIT IV Physiological Biometrics
Fingerprints, palm prints, iris, retina, geometry of hand and face.

UNIT V Behavioral Biometrics
Handwriting, signatures, keystrokes, gait and voice.

BOOKS FOR STUDY AND REFERENCES

SEMESTER – IV
SBEC-II
GUIDANCE AND COUNSELING

UNIT I Introduction to Guidance
Introduction to Counselling: Meaning, Definition, Need and Importance of counselling and professional ethics in counselling.

UNIT II Principles of Counseling
Basic Principles of Counselling: Participation, Individualization, Confidentiality, communication, acceptance, self confidence, self awareness and other principles governing the counselling relationship.

UNIT III Types of Counseling
Types of Counselling- Individual, Group & Family Counselling, Counselling process, Interview and it significance in counselling - Use of observation in counselling and understanding of emotions in counselling. Qualities of a Counsellor

UNIT IV Techniques of Counseling
Opening Techniques, Reflection of feelings, Acceptance technique, structuring techniques, silence as a technique, leading technique, interpretation technique, Techniques of group counselling, strategies and structure - barriers to effective counselling sessions; Counselling evaluation.

UNIT V Specialized Counseling
Premarital and post marital counselling, Counselling children, counselling old people, Interpersonal conflict management, counselling AIDS patients, Counselling for De-addiction - Effectiveness of counselling and guidance in the treatment of offenders and victims.

BOOKS FOR STUDY AND REFERENCES

SEMESTER – IV
NMEC-II
DIGITAL AND CYBER FORENSIC

UNIT I

UNIT II
Technical issues – Security Technologies: Certification and key Distribution, Digital Signature Protocols for Transactions, SSL Secure Socket Layer, SET Secure Electronic Transaction

UNIT III
Security Issues – Types of Attacks (Active and Passive) Stealing Passwords, Social Engineering, Bugs and Backdoors, Illegal accessing, Authentication Failures, Protocol Failures, Information Leakage, Viruses and Worms, Denial-of-Service, etc. – Firewalls, Packet Filters, Application-Level Filtering, Circuit-Level Gateways, Dynamic Packet Filters, Distributed Firewalls; Digging for Worms, Packet Filtering, Implementing policies (Default allow, Default Deny) on proxy, etc.

UNIT IV

UNIT V
Cryptography Techniques
Introduction to Cryptography, Types of Cryptographic Algorithms (Secret Key Cryptography, Public Key Cryptography, Hash Function), Electronic Signature, Stegnography, Reversing the Stegnographic Process, Manipulating File System, Data Hiding on NTFS with Alternate data Streams.
BOOKS FOR STUDY AND REFERENCES

1. File System Forensic Analysis by Brian Carrier, Publisher: Addison-Wesley Professional
5. Cyberlaw Simplified Vivek Sood, TMG

INTERNSHIP

Students should go for an internship for one month, after the Third semester, to forensic laboratory organization of their choice and submit the report with the work diary in the IV semester.

Scheme of Marks

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<tr>
<td>Report &amp; Work Diary</td>
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<td>Viva Voce</td>
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SEMESTER – V
CORE-VIII
FORENSIC BALLISTIC

UNIT I Firearms
History and development of firearms. Classification of firearms. Weapon types and their operation. Firing mechanisms of different firearms.
Internal ballistics – Definition, ignition of propellants, shape and size of propellants, manner of burning, and various factors affecting the internal ballistics: lock time, ignition time, barrel time, erosion, corrosion and gas cutting.

UNIT II
External Ballistics – Vacuum trajectory, effect of air resistance on trajectory, base drag, drop, drift, yaw, shape of projectile and stability, trajectory computation, ballistics coefficient and limiting velocity, Measurements of trajectory parameters, introduction to automated system of trajectory computation and automated management of ballistic data.

UNIT III
Terminal Ballistics – Effect of projectile on hitting the target: function of bullet shape, striking velocity, striking angle and nature of target, tumbling of bullets, effect of instability of bullet, effect of intermediate targets, influence of range. Ricochet and its effects, stopping power.

UNIT IV Ammunition
Types of ammunition. Constructional features and characteristics of different types of cartridges and bullets. Primers and priming compounds. Projectiles. Headstamp markings on ammunitions. Different types of marks produced during firing process on cartridge – firing pin marks, breech face marks, chamber marks, extractor and ejector marks.

UNIT V Firearm Evidence
Matching of bullets and cartridge cases in regular firearms. Identification of bullets, pellets and wads fired from improvised, country made firearms. Automated method of bullet and cartridge case comparison. Determination of range of fire and time of fire.

BOOKS FOR STUDY AND REFERENCES

SEMESTER – V
CORE-IX
FORENSIC TOXICOLOGY

UNIT I Basics of Toxicology

UNIT II Poisons

UNIT III

UNIT IV Narcotics, Drugs and Psychotropic Substances
Definition of narcotics, drugs and psychotropic substances. Broad classification – Narcotics, stimulants, depressants and hallucinogens. General characteristics and common example of each classification. Natural, synthetic and semi-synthetic narcotics, drugs and psychotropic substances.
Designer drugs. Tolerance, addiction and withdrawal symptoms of narcotics, drugs and psychotropic substances. Crime scene search for narcotics, drugs and psychotropic substances – searching a suspect, searching a dwelling, searching a vehicle.

UNIT V
Drugs and driving. Dope tests.
Analysis of narcotics, drugs and psychotropic substances in postmortem blood. Postmortem changes affecting the analysis of narcotics, drugs and psychotropic substances.

BOOKS FOR STUDY AND REFERENCES
SEMESTER – V
CORE - IX
FORENSIC DERMATOGLYPHICS

UNIT I Basics of fingerprinting
Introduction and history, with special reference to India.
Biological basis of fingerprints. Formation of ridges. Fundamental principles of fingerprinting.

UNIT II
Types of fingerprints. Fingerprint patterns. Fingerprint characters. Plain and rolled fingerprints.
Classification method for fingerprint record keeping. Automated Fingerprint Identification System.

UNIT III Development of Fingerprints
Latent prints. Constituents of sweat residue. F
Latent fingerprints’ detection by physical and chemical techniques.

UNIT IV
Mechanism of detection of fingerprints by different developing reagents.
Application of light sources in fingerprint detection. Preservation of developed fingerprints.

UNIT V Other Impressions
Importance of footprints. Casting of foot prints, Electrostatic lifting of latent foot prints.
Palm prints and their historical importance.

BOOKS FOR STUDY AND REFERENCES

SEMESTER – V
ELECTIVE – I
SEROLOGY AND DNA TYPING

UNIT I
Forensic Serology I Determination of human and animal origin from bones, hairs, nails, skin, body tissue, fluids / strains viz. blood, menstrual blood, semen, saliva, sweat, pus, vomit, etc., through immune diffusion..
Serogenetic markers:- Blood groups – biochemistry and genetics of ABO, Rh, Mn systems, Lewis antigen, Bombay Blood group , determination of secretor / non secretor.

UNIT II
Forensic Serology II Polymorphic enzymes typing – PGM, ESD, AK, , etc., and their forensic significance, HLA typing, paternity disputes etc.

UNIT III
1. Genetics-Human Genome
2. Deoxyribose Nucleic Acid – Structural properties Sources of DNA evidence
3. DNA Extraction-Basic Principles -Method of DNA extraction
4. DNA Quantification -Slot Blot Assay , Southern /Northern Blotting
5. DNA Amplification by Polymerase Chain Reaction
6. DNA data basing

UNIT IV
**Forensic DNA Typing** - Polymorphism in DNA system – DNA markers RELP, RAPD, VNTRs, SNP, Autosomal – STR, Y-STR, Mitochondrial DNA. Touch DNA. Application in disputed paternity cases, child swapping, Missing person’s identity – immigration, veterinary & wild life and Agriculture cases

**UNIT V**

**Report Writing:** DNA data base, DNA data basing Role of DNA typing in identifying unrecognizable bodies.

**Legal perspectives** – legal standards for admissibility of DNA profiling, procedural and ethical concerns, status of development of DNA profiling in India and abroad.

**BOOKS FOR STUDY AND REFERENCES**

SEMESTER – V
CORE X
FORENSIC SCIENCE PRACTICAL


Preparing chart of chain of possession of material objects. Prepares draft scenes (5 numbers) involving locards principles of exchange.
SEMESTER – VI  
CORE XI  
PRIVATE DETECTIVE AND INVESTIGATION

UNIT I Introduction
Introduction to Investigation – Process of Investigation in CrPc - Difference between Police 
and Private Investigator – Desirable attributes of Investigator

UNIT II Surveillance
Undercover Operations – Surveillance : Purpose, Pre-surveillance Conference, Covert 
and overt Surveillance, Automobile Surveillance, Foot Surveillance, Team Surveillance

UNIT III Types of Investigation
Pre and Post Marital Investigation – Land Dispute investigation – Student Investigation, Kidnapping 
and abduction investigation – missing person investigation – Traffic accident investigation Pre & Post 
employment verification.

UNIT IV Instruments used in Investigation
Audio recording devices – Video recording devices- Photo camera.

UNIT V Interrogation and Interview
Difference between interrogation and Interview – Uses of Interviews and Interrogations – Types of 
witnesses.

BOOKS FOR STUDY AND REFERENCES
   Thomas Investigative Publications.
2. Bill Copeland (2001) Private Investigation: How to be successful, Absolutely zero 
   loss Inc.
Thomas Investigative Publications.

SEMESTER – VI
CORE XII
INTRODUCTION TO RESEARCH METHODOLOGY

UNIT I
Introduction- Definitions and types of research; Research process and steps in conducting research; Applications of Research. Ethical issues in conducting research.

UNIT II
Research Modeling- Types of Data, Data collection methods- Survey method, Observation method, Experimentation; Scaling techniques; types of sampling, steps in sampling, advantage and limitations of sampling

UNIT III

UNIT IV
Data Analysis Techniques--Quantitative and qualitative methods of data analysis; Hypothesis Testing - Parametric tests (Z-test, t-test, F-test) and Non-parametric Tests (Chi-Square Test, ANNOVA), Tests of significance based on normal distributions; association of attributes.

UNIT V
Report Writing --Report generation, report writing, and APA format – Title page, Abstract, Introduction, Methodology, Results, Discussion, References, and Appendices.

BOOKS FOR STUDY AND REFERENCES
SEMESTER – VI
CORE XIII
HAND WRITING IDENTIFICATION & RECOGNITION

UNIT I Nature and Scope of 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 II Comparison of Documents

UNIT III
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 Forgeries
Alterations in documents, including erasures, additions, over-writings and obliterations.
Indented and invisible writings. Charred documents.

UNIT V
Examination of counterfeit Indian currency notes, passports, visas and stamp papers.
Disguised writing and anonymous letters.
Significance of handwriting in crime scene, suicide notes and its types, methods of preserving handwriting evidences in crime scene.

**BOOKS FOR STUDY AND REFERENCES**


**SEMESTER – VI**

**ELECTIVE II**

**CONTEMPORARY FORMS OF CRIME**

**UNIT I White Collar Crime**

Nature, meaning, and forms - Tax evasion - Import/export violations - Insurance frauds - Misbranding and adulteration - Corporate crimes

**UNIT II Organized Crime Syndicates**

Nature, meaning and forms - Criminal syndicates - Organized crimes: Regional and international linkages - Problems of identification, investigation and prosecution - Prevention and control strategies. Drug Smuggling, Substance Abuse

**UNIT III Political Crimes: Terrorism and Communal Violence**


**UNIT IV Cyber Crimes**

Nature, meaning, definition, forms and etiology - Copyright violation of soft ware - Internet frauds – Cyber Pornography – IT Act 2000 – SMS and MMS Stalking - Prevention, detection and prosecution of cyber criminals
UNIT V Women and Child Trafficking


BOOKS FOR STUDY AND REFERENCES

Objectives:

The objective of research is to seek answers to problems through application of scientific methodology which guarantees that information collected is reliable and unbiased. This information is utilised to make conclusions and recommend solutions. The elements that are to be kept in mind while undertaking research is deciding a relevant topic, feasibility, coverage, accuracy and research, objectivity and ethics.

Students will work closely with their supervisor and develop mutually working relationship to initiate the research which would involve preparing an outline and preliminary collection of data. The supervisor will guide the student in framing and planning the research project and the methodology to be adopted in collection of data, through interviews, telephones, mailers etc. while the student on their part will expose themselves to research of the topic through meetings, interviews, internet search, library etc. The student should generally produce all material in word processed or typed format so that the presentation is neat and legible. Student must inform their supervisor or other people with whom their work is being discussed. The research should be planned to minimize time wastage and a clear time scale should be put in place. The research should really spell out the objective, its findings, the methodology adopted, its conclusions and recommendations. The student and supervisor will work together to prepare synopsis of the research.
One hour per week has been allocated for the purpose and students alongwith the supervisor must regularly interact during this period. The final preparation and presentation would be done before a panel of internal and external examiners through a report and viva voce.

**SCHEME OF EVALUATION**

Pre-preparation of the project / Attendance - 25 marks  
Viva-Voce - 25 marks  
Project report - 50 marks

**TOTAL MARKS 100 MARKS**