

**Weekly Lesson Plan**  
**B.Sc. (Forensic Science) - I Semester (odd)**  
**Session- 2021-22**

**Subject:** Forensic Science

**Paper I:** Basics of Forensic Science

**Paper II:** Crime Scene Investigation and Management

Week	Dates	Paper	Topic(s)
1.	Oct 25-30, 2021	I	Introduction to the syllabus Introduction, Definition, need , significance and scope of Forensic Science
		II	Cr ime scene investigation: Definition of crime scene, crimes without scene
2.	Nov. 8-13 , 2021	I	Principle and laws of Forensic Science,.
		II	Classification of crime scene: indoor & outdoor, primary & secondary, macroscopic & microscopic crime scene. Significance of crime scene, argument and ethics of crime scene.
3.	Nov.15-20 , 2021	I	Domains in Forensic Science : Forensic Biology and serology,
		II	Definition of physical evidence, classification of physical evidence, types of physical evidences, sources of physical evidence
4.	Nov. 22-27, 2021	I	Forensic Medicine, Forensic Toxicology, Forensic Osteology
		II	Signification and value of physical evidence, linkage between crime scene, victim and criminal
5.	Nov. 29-Dec. 4,2021	I	Forensic Photography and its applications, Ballistics, Fingerprint, Questioned Documents.
		II	Study of some special crime scene such as mass disaster, terror attack, geological scene and explosive etc
6.	Dec.6-11, 2021	I	Forensic Psychology, Detection of Deception Forensic Anthropology.
		II	Cr ime scene management: Introduction to crime scene management, duties of first responding of ficer at the scene of crime
7.	Dec.13-18 , 2021	I	Wildlife Forensic, DNA profiling

		II	Duties of crime scene investigator, specialized personnel at the crime scene: biological or chemical terrorist crime scene
8.	Dec.20- 24, 2021	I	Forensic Odontology, Forensic Physics
		II	Processing of scene of crime: plan of action, protection of scene of crime
9.	Dec 27, 2021 - Jan 1,2022	I	Computer Forensic etc. Functions of Forensic Scientist, Police officers.
		II	Photography and video recording of crime scene, sketching of crime scene, searching, collection, preservation, packing of physical evidence
10.	Jan 3-8, 2022	I	Prosecution, Judicial Officers and Medico legal expert etc. Problem of proof in Forensic Science.
		II	Documentation of crime scene, forwarding or dispatch of relationship between forensic expert and judiciary of ficer
11.	Jan.10-15, 2022	I	Legal admissibility of various evidences, corpus delicti, modus operandi.
		II	Importance of FSL, National and International scenario of FSL,
12.	Jan. 17-22, 2022	I	Multi professional and multi personal aspects of forensic science
		II	Facilities provided in forensic science laboratory. Ethical issue in FSL
13.	Jan. 24-29, 2022	I	Professional standards for practice of Criminalistics
		II	Criminal behavior: Introduction of criminal behavior , theories of criminal behavior: psychogenic theory,
14.	Jan 31, Feb.5, 2022	I	Ethical issue in Forensic Science: Definition of ethics.
		II	classical and non -classical theories, biological theories, physiological theories
15.	Feb. 7-12,2022	I	Sanction against expert for unethical conduct.
			Economic theory, geographical theories, and

		II	sociological theories.
16.	Feb. 14-19, 2022	I	Revision
		II	
17.	Feb. 21-22, 2022	I	Revision
		II	

**Weekly Lesson Plan**  
**B.Sc. (Forensic Science) - II Semester (Even)**  
**Session- 2021-22**

**Subject:** Forensic Science

**Paper I:** Crime Detection

**Paper II:** Forensic Evidences

Week	Dates	Paper	Topic(s)
1.	April 1-2, 2022	I II	Introduction to the syllabus Organization set up of Forensic Science Laboratory: Structure and function of SFSL,  Definition, types, class and individual characteristics, Principle of exchange, General information provided by physical evidences.
2.	April 4-9, 2022	I II	RFSL, CFSL and facility provided, MFSL  Different search methods for locating physical evidences at scene of crime, Chain of Custody
3.	April 11-16,2022	I II	Directorate of Forensic Science Service. Police and Forensic scientist relationship  Botanical samples - Wood, leaves, pollens, seeds, diatoms etc
4.	April 18-23, 2022	I II	Cr ime detect ion agency: Organization set up and functioning of GEQD, CFI, FB, and NCRB.  Biological samples Blood, semen, Saliva, urine, vomit, fecal material, hair etc.
5.	April 25-30, 2022	I II	National Institute of Criminology and Forensic science, Cr ime investigation department, Preservation, Packing, labeling, transportation and forwarding of the following physical evidences.
6.	May 2-7,2022	I II	National Investigation Agency, World Anti-Doping Agency, National Drug Testing Laboratory  Chemical samples volatile liquids, nonvolatile liquids, flammable liquids, solid chemical etc.
7.	May 9-14, 2022	I II	Organization set up and functioning of CFI, FB  Toxicological samples -viscera, adulterated food stuff, blood, urine, vomit etc. Post mortem

			samples
8.	May 16-21,2022	I	Organization set up and functioning of NCRB, OCTOPUS
		II	Preservation, packing, labeling, handling, transportation and forwarding of the following physical evidences
9.	May23-28, 2022	I	Centre for Cellular and Molecular Biology Intelligence Bureau, Research Analysis Wing,
		II	Fingerprint , impressions and documents,
10.	May 30-31- June 1-4,2022	I	Bureau of Police Research & Development, Organization.
		II	Physical samples - fiber, glass, textile, wire & cables, dust & soil, cement etc.
11.	June 6-11, 2022	I	Defense Research and Development Organization
		II	Ballistics samples- firearms, ammunitions, GSR etc.
12.	June 13-16, 2022	I	Fingerprint Bureau Investigation, Crime Investigation Agency
		II	Recognition of Bloodstain Patterns: History of Bloodstain Pattern interpretation,
13.	June 13-18,2022	I	Central Bureau of Investigation, National Police Academy
		II	Properties of human blood, target surface considerations, Size, Shape and Directionality of bloodstains
14.	June 20-25, 2022	I	Central Police Organization, Central Detective Training School
		II	Spattered blood, other Bloodstain Pat terns, interpretation of Bloodstain on clothing and footwear,
15.	June 27-30, July1-2,2022	I	Cr ime Scene Investigation, Drug Enforcement Administrator & Interpol etc.
		II	Documentation and Photography for Bloodstain Pattern Analysis
16.	July 4- 9,2022	I & II	Revision

**Weekly Lesson Plan**  
**B.Sc. (Forensic Science) - III Semester (odd)**  
**Session- 2021-22**

**Subject:** Forensic Science

**Paper I:** Analytical Techniques and Methods used in Forensic Science

**Paper II:** Questioned Document and Report Writing

Week	Date	Paper	Topic to be Covered
1.	Oct 25-30, 2021	I	Elementary theory of microscope, scope of microscope in forensic science. Varieties of microscopes, stereoscopic microscopes, fluorescent microscope
		II	Forensic Documents: Preliminary examination of questioned documents.
2.	Nov. 8-13, 2021	I	Polarizing microscope, comparative microscope, scanning electron microscope (SEM), transmission electron microscope (TEM)
		II	Various types of forensic documents
3.	Nov.15-20, 2021	I	Chromatographic parameters – capacity term, selectivity term and efficiency term
		II	genuine and forged documents, classification of forensic documents: Specimen writings, admitted writings
4.	Nov. 22-27, 2021	I	HETP, column efficiency – Van Deemter equation and curve
		II	Handling, preservation and marking of documents, natural variation and disguise in writing
5.	Nov. 29-Dec. 4,2021	I	Capillary columns, detectors for GLC and HPLC,
		II	Principle of Handwriting Identification, general and individual characteristics

6.	Dec.6-11, 2021	I	temperature programming in GLC and gradient elution in HPLC
		II	Basic Tools needed for forensic documents examination and their use
7.	Dec.13-18, 2021	I	derivatisation for GLC
		II	Natural variations, fundamental divergences, Alternations in documents: erases, additions, overwriting and obliterations
8.	Dec.20- 24, 2021	I	derivatisation forHPLC.
		II	Determination of age of Documents, Sequence of Strokes
9.	Dec 27, 2021 - Jan 1,2022	I	Forensic applicationsGC-MS
		II	Various types of forgeries and their detection. Analysis of paper and inks.
10.	Jan 3-8, 2022	I	Forensic applicationsHPLC-MS
		II	Scientific Report writing: - Components of reports and report format relating toCrime Scene and Laboratory findings
11.	Jan.10-15, 2022	I	Forensic applications Py-GC-MS.
		II	Stages in criminal proceedings: - FIR,Investigation, prosecution and trial stage. Remand and bail processes.
12.	Jan. 17-22, 2022	I	Basic principles and applications of – UV-Vis spectroscopy
		II	Crimes underSpecial and Local laws: - Crimes under Dowry Prohibition Act
13.	Jan. 24-29, 2022	I	Infrared spectroscopy,
		II	Crimes underImmoral Traffic Act, Specific offences under the Indian Penal Code (Homicide, sexual offences, offences against property)

14.	Jan 31, Feb1-5, 2022	I II	Raman spectroscopy,  Classification of offenses: Cognizable and Non cognizable offence,
15.	Feb. 7-12,2022	I II	NMRspectroscopy  Bailable and non bailable offences,
16.	Feb. 14-19, 2022	I II	ESR spectroscopy  Role of media, Role & Functions of Police.
17.	Feb. 21-22, 2022	I II	Mass spectroscopy  compoundable and non-compoundable offences



**Weekly Lesson Plan**  
**B.Sc. (Forensic Science) - IV Semester (Even)**  
**Session- 2021-22**

**Subject:** Forensic Science

**Paper I:** Forensic Medicine

**Paper II:** Forensic Chemistry and Toxicology

Week	Date	Paper	Topic to be Covered
1.	April 1-2, 2022	I	Global Medical Jurisprudence, Legal Procedure in India: - Police inquest, Magistrate's inquest, Coroner's inquest, Oath and affirmation
		II	Forensic toxicology - meaning Poison and Types
2.	April 4-9, 2022	I	Documentary evidence: - Medical certificates, medical reports, dying declaration
		II	Poisoning Action of Poison
3.	April 11-16,2022	I	Understanding laws and ethics of medical practice. Medico legal aspects of death
		II	Poisoning Action of Poison
4.	April 18-23, 2022	I	Diagnosis of death- somatic & molecular
		II	Classification of poison
5.	April 25-30, 2022	I	Early and intermediate changes following death
		II	Isolation and analysis of metallic poison As
6.	May 2-7,2022	I	Late changes after death - putrefaction, autolysis, bacterial action, factors affecting these changes
		II	Isolation and analysis of metallic poison Pb
7.	May 9-14, 2022	I	Determination of time since death, including by histopathological methods.
		II	Isolation and analysis of metallic poison Sb
8.	May 16-21,2022	I	Medico legal investigation of sexual offences, including examination of victims and suspects
		II	Isolation and analysis of metallic poison Zn

9.	May23-28, 2022	I	Medico legal aspects of 20 death
		II	Analysis of ethyl alcohol in biological fluids
10.	May 30-31- June 1-4,2022	I	Causes of death such as asphyxia, electrocution, thermal trauma, heat burns, starvation, natural death, sudden death, death by accident
		II	Analysis of methanol, Snake Venom
11.	June 6-11, 2022	I	Medico legal aspects of wounds: -medical and legal definition of wounds, Injuries, Asphyxia, Unnatural Offences (Sexual Offences)
		II	Opium, Semi-synthetic opiates
12.	June 13-16, 2022	I	Types of mechanical and regional injuries, aging of wounds,
		II	Cannabis drugs such as Bhang, Ganja and Charas LSD and Amphetamine
13.	June 13-18,2022	I	Difference between suicidal, homicidal and accidental wounds,
		II	General Idea about NDPS Act. Sections 15 – 32, 37
14.	June 20-25, 2022	I	Identification of living
		II	Benzodiazepines
15.	June 27-30, July1-2,2022	I	Identification of dead
		II	Phenothiazines
16.	July 4- 9,2022	I	Time since death
		II	Barbiturates

**Weekly Lesson Plan**  
**B.Sc. (Forensic Science) - V Semester (Odd)**  
**Session- 2021-22**

**Subject: Forensic Science**

**Paper I:** Finger prints & Impressions

**Paper II:** Analytical Techniques and Methods Used in Forensic Science - II

Week	Dates	Paper	Topic(s)
1.	Oct 25-30, 2021	I II	Introduction to the syllabus Fingerprints as evidence: Its recognition, Methods of digestion of samples with special reference to microwave digestion
2.	Nov. 8-13, 2021	I II	History and Development of fingerprints Methods of separation and isolation with special reference to steam distillation, fractional distillation, sweep distillation, under vacuum distillation
3.	Nov.15-20, 2021	I II	Formation of ridges, Fingerprints patterns, Pattern Areas Solvent extraction, solid phase extraction
4.	Nov. 22-27, 2021	I II	General and Individual characteristics of fingerprint, Composition of Sweat Solid phase micro extraction, supercritical fluid extract ion, micellar extraction
5.	Nov. 29-Dec. 4,2021	I II	Classification of fingerprints- Henry System of classification, Single digit Classification, Extension of Henry system Microwave accelerated reaction system, density gradient centrifugation, field flow fractionation.
6.	Dec.6-11, 2021	I II	Fingerprint Bureau. AFIS (Automated Dialysis and electro dialysis, head spectra technique
7.	Dec.13-18, 2021	I II	Fingerprint Identification System, Search for Fingerprints, Chance Fingerprints, Latent Fingerprints Electrophoresis – Gel electrophoresis basic principles and applications
8.	Dec.20- 24, 2021	I II	Various methods of development of fingerprints: conventional methods, physical and chemical fiorescent method, Capillary electrophoresis, basic principles and

			applications
9.	Dec 27, 2021 - Jan 1, 2022	I II	Magnetic Powder method, fuming method, laser method.  Laser system – purity of spectral lines, coherence length and coherence time, spatial coherence of a source
10.	Jan 3-8, 2022	I II	Taking fingerprints from living and dead persons. Different Types of Surfaces (Porous, Semi-porous, non-porous) Einstein's A and B coefficients, coherence of induced emissions, conditions for laser action, existence of a meta stable state
11.	Jan.10-15, 2022	I II	Impressions and Prints: Footprints: Importance, Gait Pattern, Casting of footprints in Different medium, Taking Control samples. Population by inversion by pumping and cavity. He -Ne and Ruby laser.
12.	Jan. 17-22, 2022	I II	Lip Prints- Nature, Location, collection and evaluation, taking control samples  Application of Laser polarization and including higher order
13.	Jan. 24-29, 2022	I II	Forensic Significance. Tyre Marks/prints and Skid marks, taking control samples  Generation of harmonics, momentum mismatch and choice of right crystal and direction for compensation.
14.	Jan 31, Feb1-5, 2022	I II	Bite Marks- Nature, Location, collection and evaluation, taking control samples, Forensic Significance. Basic principles and applications of and gel permeation chromatography
15.	Feb. 7-12, 2022	I II	Ear Prints- Nature, Location, collection and evaluation, taking control samples, Forensic Significance Basic principles and applications of adsorption, ion exchange
16.	Feb. 14-19, 2022	I II	Revision
17.	Feb. 21-22, 2022	I II	Revision

**Weekly Lesson Plan**  
**B.Sc. (Forensic Science) - VI Semester (Even)**  
**Session- 2021-22**

**Subject: Forensic Science**

**Paper I: Computer Forensics and Biometrics**

**Paper II: Advanced Forensic Serology and DNA Forensics**

<b>Week</b>	<b>Dates</b>	<b>Paper</b>	<b>Topic(s)</b>
1.	April 1-2, 2022	I II	Computer and Cyber Crimes: Introduction Immunology: Immune System, immune response Innate and acquired immunity and antigens, heptanes and adjuvant.
2.	April 4-9, 2022	I II	Stand alone computer crimes –Printing of counterfeit currency notes Immunoglobulin: Types, Physio-chemical properties and function, raising of antisera. Lectins: Forensic significance, buffers and serological reagents, methods of sterilization employed for serological work.
3.	April 11-16,2022	I II	Computer Scanners, Imaging Software Photoshop, Photo Paint etc. Antigen-Antibody Reactions: Precipitation, agglutination, complement, neutralization, immune fluorescence.
4.	April 18-23, 2022	I II	Software piracy, Data Recovery. HLA system: Its applications in paternity testing, pitfalls of HLA system. Forensic examination of Body Fluids : Species of Origin (Immunodiffusion and Immunoelectrophoresis)
5.	April 25-30, 2022	I II	Networked Computer Crimes: Unauthorized access and interception Individualization: Blood Grouping, Enzyme Typing.
6.	May 2-7,2022	I II	Hacking, Computer Viruses DNA Profiling : Introduction, History of DNA Typing
7.	May 9-14, 2022	I II	Programme manipulations Computer Security Human genetics – heredity, alleles,
8.	May 16-21,2022	I	Internet, use of Biometric methods with special reference to personal identification.

		II	Mutations and population genetics, molecular biology of DNA, variations, polymorphism
9.	May23-28, 2022	I II	Image Processing: Introduction and Process, DNA typing systems- RELP analysis. PCR amplifications, sequence polymorphism
10.	May 30-31- June 1-4,2022	I II	Image Enhancement and Restoration. Mitochondrial DNA, evaluation of results
11.	June 6-11, 2022	I II	The investigation of erased tapes an analysis of signals (Analog video image processing) Frequency estimate calculations, interpretations, allele frequency determination, match probability – database, quality control, certification and accreditation
12.	June 13-16, 2022	I II	Methods for digital video recording, Digitalization Techniques, Compression, Encryption methods Analysis of SNP, Y-STR,
13.	June 13-18,2022	I II	Investigation of Integrity of Images and Videos. Forensic Significance of DNA Profiling: Applications in disputed paternity cases, child swapping, missing person's identity – civil immigrations, veterinary, wildlife and agriculture cases New and future technologies: DNA chips, SNPs and limitations of DNA profiling
14.	June 20-25, 2022	I II	Biometrics: Definition, Types of Biometrics Tools Legal perspectives– legal standards for admissibility of DNA profiling, procedural and ethical concerns, status of development of DNA profiling in India and abroad.
15.	June 27-30, July1-2,2022	I II	Revision
16.	July 4- 9,2022	I II	Revision

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – VII Semester (Odd)**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: FSC 101**

**Paper: General Forensic Science**

**Semester: 7<sup>th</sup>**

<b>Week</b>	<b>Date</b>	<b>Topic to be Covered</b>
1.	Oct 25-30, 2021	Forensic Science : History, Development, and need of Forensic Science
2.	Nov. 8-13, 2021	Forensic Science:Forensic Science and its International Perspective, Ethics in Forensic Science
3.	Nov.15-20, 2021	Forensic Science : Duties of Forensic Scientist, Basic Principles of Forensic Science.
4.	Nov. 22-27, 2021	Organizational setup of Forensic Science Laboratories: CFSL, FSL, GEQD, DFSS, Central Detective Training School
5.	Nov. 29-Dec. 4,2021	Organizational setup of Forensic Science Laboratories: NCRB, Mobile Forensic Science Laboratory, Branches of Forensic Science.
6.	Dec.6-11, 2021	Crime Scene Investigation: Introduction, characteristics and types of crime scene, physical evidences, Protection and recording of crime scene
7.	Dec.13-18, 2021	Crime Scene Investigation: Search of physical clues, preservation, chain of custody, packing and forwarding of physical clues, blood pattern analysis.
8.	Dec.20- 24, 2021	Fingerprints : introduction, types of fingerprints
9.	Dec 27, 2021 - Jan 1,2022	Fingerprints: searching methods, collection and preservation and evaluation.
10.	Jan 3-8, 2022	Forensic Photography: Basic principles and techniques of Black & White and colour photography,
11.	Jan.10-15, 2022	Forensic Photography: IR photography, working of digital camera and basics of digital imaging.digital photography,
12.	Jan. 17-22, 2022	Forensic Photography: Digital videography. Crime scene and laboratory photography, microphotography.
13.	Jan. 24-29, 2022	Criminal Justice System: Structure of Police, Prosecution & Judicial Organizations, Inquest,
14.	Jan 31, Feb1-5, 2022	Criminal Justice System: Evidence in enquiries and trials, expert witness, Admissibility of forensic reports in court, expert testimony.
15.	Feb. 7-12,2022	Computers: Introduction, History of Digital computer,

		computer organization-hardware
16.	Feb. 14-19, 2022	Computers: Circuits for interfacing computer to instruments, computer scanners
17.	Feb. 21-22, 2022	Computers: Imaging softwares (Photo paint, Photoshop etc.), MS word, Data library



**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – VII Semester (Odd)**  
**Session- 2021-22**

**Subject:** Forensic Science  
**Paper:** Instrumental Analysis I

**Subject:** FSC 102  
**Semester:** 7<sup>th</sup>

<b>Week</b>	<b>Dates</b>	<b>Topic(s)</b>
1.	Oct 25-30, 2021	Microscopy: Principles and techniques of Microscopy: Light Microscope, Phase contrast, Fluorescence, stereomicroscope,
2.	Nov. 8-13 , 2021	Polarizing, comparison and Electron Microscope (Scanning, Transmission) Forensic application of microscopy. Microspectrophotometry
3.	Nov.15-20 , 2021	Chromatography: Introduction Basic principles, types of chromatography, partition and adsorption chromatography techniques.
4.	Nov. 22-27, 2021	Thin Layer Chromatography: introduction theory and Instrumentation of TLC, HPTLC, stationary phases, visualization methods, densitometer, applications.
5.	Nov. 29-Dec. 4,2021	Gas chromatography: introduction, principle and Instrumentation of GC, types of GC ( GLC, and GSC) and column types and structure, Detectors for GC -TCD,FID, ECD, NPD etc, and evaluation of chromatogram, Pyrolysis GC, GC-MS; forensic applications.
6.	Dec.6-11, 2021	High Performance liquid chromatography: introduction, principle and Instrumentation of HPLC, injection system, column structure, detectors for HPLC, advantage and limitations of HPLC; their forensic applications.
7.	Dec.13-18 , 2021	Spectroscopy: Basic principles, property of EMR, interaction of radiation with matters, atomic and molecular spectra; source of radiations
8.	Dec.20- 24, 2021	Radiations detection devices, wavelength selector, basic components of absorption and emission spectroscopy.

9.	Dec 27, 2021 - Jan 1, 2022	UV-Visible, IR and Raman spectroscopy: introduction, principles, instrumentation, single beam and double beam spectrophotometer, interpretation of spectra,
10.	Jan 3-8, 2022	Qualitative and quantitative analysis: advantage and limitations of UV, IR and Raman spectrophotometer, forensic applications.
11.	Jan. 10-15, 2022	Atomic absorption/ emission spectroscopy: introduction, principles, Instrumentation; types of AAS, ICP-AES,
12.	Jan. 17-22, 2022	Quantitative and qualitative analysis, advantage and limitations of AAS and AES, their forensic applications.
13.	Jan. 24-29, 2022	Mass Spectroscopy: principle, instrumentation, ion sources, type of mass analyser- quadrupole, time of flight, double focusing, tandem mass spectroscopy, detectors for mass spectroscopy ; their forensic applications.
14.	Jan 31, Feb 1-5, 2022	NMR Spectroscopy, Neutron Activation Analysis: introduction and principle, techniques and forensic application
15.	Feb. 7-12, 2022	X-rays spectroscopy; introduction, principles of X ray diffraction and X ray fluorescence technique, their forensic applications.
16.	Feb. 14-19, 2022	Revision
17.	Feb. 21-22, 2022	Revision

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – VII Semester (Odd)**  
**Session- 2021-22**

**Subject:** Forensic Science

**Subject:** FSC 103

**Paper:** Forensic Biology And Serology

**Semester:** 7<sup>th</sup>

<b>Week</b>	<b>Dates</b>	<b>Topic(s)</b>
1.	Oct 25-30, 2021	Forensic Biology: types of biological evidences, identification, collection, preservation, and significance of biological evidence.
2.	Nov. 8-13 , 2021	Hair and fibers: classification, characteristics, forensic identification and evaluation of hair and fibers evidences
3.	Nov.15-20 , 2021	Microbial forensics and Entomology: Organisms of Forensic significance, types, isolation and identification.
4.	Nov. 22-27, 2021	Introduction to forensic Entomology, insects / invertebrates of forensic importance, collection of entomological evidence, their life cycle,
5.	Nov. 29-Dec. 4,2021	The role of aquatic insects in forensics, insects succession on carrion and its relationship to determine time since death.
6.	Dec.6-11, 2021	Forensic Botany: Introduction, types, significance, location, collection and Forensic evaluation of botanical evidences such as pollen grains, leaves, seeds etc.
7.	Dec.13-18 , 2021	Wood- types, soft and hard wood. Identification and comparison. Diatoms: types, morphology, methods of extraction from tissue and bones, their identification and Forensic significance
8.	Dec.20- 24, 2021	Wild life Forensics: scope, different protected and endangered species of animals. Wild life crime investigation- procedure, tools and techniques. Wild life protection act, animal poaching, animal abuse, wild life trading.

9.	Dec 27, 2021 - Jan 1, 2022	Identification of pug marks. Identification of wild life clue materials such as hair, skin, fur, bones, nails, horn, teeth etc by conventional and modern methods. Case studies related to wild life crime.
10.	Jan 3-8, 2022	Forensic Serology: Blood groups – history, biochemistry and genetics of ABO, Rh, MN and other blood group systems, secretors and non secretors, rare alleles.
11.	Jan.10-15, 2022	Blood identification, Methods of ABO blood grouping from dried blood stains and other body fluids, species identification.
12.	Jan. 17-22, 2022	Polymorphic Enzymes (PGM, GLO-I, ESD, EAP, AK, ADA etc)- their forensic significance
13.	Jan. 24-29, 2022	Body fluids: semen- Introduction, composition, human spermatozoa morphology, Forensic examination and evaluation. Sex determination, X chromosome Inactivation- Barr body.
14.	Jan 31, Feb1-5, 2022	Sex determination, X chromosome Inactivation- Barr body.
15.	Feb. 7-12, 2022	Other biological fluid clues such as saliva, sweat their introduction & collection preservation and examination.
16.	Feb. 14-19, 2022	Other biological fluid clues urine and milk their introduction & collection preservation and examination,
17.	Feb. 21-22, 2022	Revision

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – VII Semester (Odd)**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: FSC: 104**

**Paper: Forensic Psychology and Statistics**

**Semester: 7<sup>th</sup>**

<b>Week</b>	<b>Date</b>	<b>Topic to be Covered</b>
1.	Oct 25-30, 2021	Introduction to Forensic Psychology; scope & ethics
2.	Nov. 8-13 , 2021	Distinction between Forensic and therapeutic evaluation, Genetic basis of Psychology
3.	Nov.15-20 , 2021	Legal aspect of forensic psychology practice
4.	Nov. 22-27, 2021	Forensic Psychiatry: Introduction, classification of mental disorders
5.	Nov. 29-Dec. 4,2021	Forensic Psychiatric Examination, Scope of psychiatric examination in criminal and civil cases
6.	Dec.6-11, 2021	Types and classification of crimes and criminals
7.	Dec.13-18 , 2021	Criminal Profiling, and Modus Operandi
8.	Dec.20- 24, 2021	Brain Fingerprinting, Polygraph
9.	Dec 27, 2021 - Jan 1,2022	Hypnosis, Narco Analysis, role in criminal justice system
10.	Jan 3-8, 2022	Arithmetic mean, mode and median Definition, calculation and its properties.
11.	Jan.10-15, 2022	Range, Interquartile range, Quartile deviation, Mean deviation and standard deviation.
12.	Jan. 17-22, 2022	Correlation
13.	Jan. 24-29, 2022	Regression analysis
14.	Jan 31, Feb1-5, 2022	Concept of sampling and sampling methods
15.	Feb. 7-12,2022	Test of significance
16.	Feb. 14-19, 2022	Chi-square analysis
17.	Feb. 21-22, 2022	Revision

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – VIII Semester (Even)**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: FSC: 201**

**Paper: Forensic Chemistry and Toxicology**

**Semester: 8<sup>th</sup>**

<b>Week</b>	<b>Date</b>	<b>Topic to be Covered</b>
1.	April 1-2, 2022	Introduction, Colour & Spot test, microcrystal tests, inorganic and organic analysis.
2.	April 4-9, 2022	Analysis of Beverages: alcoholic and nonalcoholic beverages, illicit liquors, detection and estimation of ethanol. Breathe alcohol analyzer.
3.	April 11-16, 2022	Analysis of trace evidence – cosmetics dyes, pigments, clues of trap cases.
4.	April 18-23, 2022	Introduction, standard methods of analysis of petroleum product for adulteration as per BIS.
5.	April 25-30, 2022	Arson Investigation: chemistry of fire, Forensic investigation of arson cases.
6.	May 2-7, 2022	introduction, classification, drug of abuse in sports. General chemistry and analysis of narcotic drugs and psychotropic substances
7.	May 9-14, 2022	cocaine, cannabis, barbiturates, benzodiazepines, amphetamine, opium, hallucinogens, designer drugs.
8.	May 16-21, 2022	Introduction of NDPS act, drugs and cosmetic act.
9.	May 23-28, 2022	Introduction and scope of forensic toxicology, classification of poisons, legal aspects of poisoning, types of poisoning
10.	May 30-31- June 1-4, 2022	Antidotes, factors modifying action of poisons, LD-50, sign and symptoms of common poisons.
11.	June 6-11, 2022	Collection, preservation of samples; Conventional and recent extraction and isolation methods of poisons.
12.	June 13-16, 2022	Pharmacology: theory and principles of absorption, distribution, biotransformation and excretion of drugs/poisons, and their forensic aspects.
13.	June 13-18, 2022	General studies and Analysis of vegetable poisons: Opium, Abrus, Dhatura, Marking nuts, Nux-vomica, Oleander and Aconite.
14.	June 20-25, 2022	Alkaloids: classification and characterisations. Snake

		venoms and insect poisons,
15.	June 27-30, July1-2,2022	Irrespirable gases, food poisoning, Insecticides and Metallic Poisons: introduction, types,
16.	July 4- 9,2022	Insecticides and Metallic Poisons: Analysis

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – VIII Semester**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: FSC: 202**

**Paper: Instrumental Analysis II**

**Semester: 8<sup>th</sup>**

<b>Week</b>	<b>Date</b>	<b>Topic to be Covered</b>
1.	April 1-2, 2022	Isolation of DNA, RNA, Purification, Restriction
2.	April 4-9, 2022	PCR – DNA amplification, autoradiography, and forensic applications
3.	April 11-16,2022	Cell and tissue culture techniques: pH and buffers, culture media preparations
4.	April 18-23, 2022	Sterilization techniques and forensic applications
5.	April 25-30, 2022	Centrifugation Techniques - Centrifugation, cold and ultracentrifuges basic principle, instrumentation
6.	May 2-7,2022	G-value & relationship between RPM., applications of analytical centrifugation.
7.	May 9-14, 2022	Electrophoresis: Introduction, principles, factors affecting electrophoresis,
8.	May 16-21,2022	types of electrophoresis. High and low voltage electrophoresis, capillary electrophoresis.
9.	May23-28, 2022	Immune electrophoresis, SDS-PAGE and iso- electric focusing; their application.
10.	May 30-31- June 1-4,2022	Enzyme kinetics, enzyme assay techniques such as visible UV spectrophotometric methods
11.	June 6-11, 2022	Luminescence method, Radioisotope methods and Immuno-chemical methods.
12.	June 13-16, 2022	Radio chemical techniques: radioisotope, nature of radioactivity
13.	June 13-18,2022	Detection and measurements of radioactivity and forensic applications.
14.	June 20-25, 2022	Immunochemical Techniques: Introduction, Antigen - antibody reactions -theory and principles
15.	June 27-30, July1-2,2022	Production of antibodies. Immunoprecipitation and agglutination-based techniques such as immunodiffusion, cross over electrophoresis
16.	July 4- 9,2022	Labeling of Antibodies and their detection methods, ELISA, RIA- their basic principle, techniques, and their forensic applications.



**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – VIII Semester (Even)**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: FSC:203**

**Paper: Questioned Document Examination**

**Semester: 8<sup>th</sup>**

<b>Week</b>	<b>Date</b>	<b>Topic to be Covered</b>
1.	April 1-2, 2022	Introduction and classification of documents, genuine and forged document, and holographic document
2.	April 4-9, 2022	Preliminary examination of documents, ways of procurement, handling and marking of document, preservation and reproduction of documents. Basic tools for forensic document examination
3.	April 11-16,2022	Handwriting: principle, characteristics of handwriting, Identification and evaluation of handwriting
4.	April 18-23, 2022	Types of forgery, characteristic of genuine and forged signature and their examination. Identification of writer of anonymous letter.
5.	April 25-30, 2022	Ink and paper examination
6.	May 2-7,2022	Determination of age of documents
7.	May 9-14, 2022	Examination of various printing devices and forgeries of printed document
8.	May 16-21,2022	Examination of altered documents
9.	May23-28, 2022	Methods and examination of alteration, obliterations, erasures
10.	May 30-31- June 1-4,2022	Secret writing, Intended
11.	June 6-11, 2022	Charred document
12.	June 13-16, 2022	Study of advance techniques for examination of alterations such as Projectina, VSC and ESDA
13.	June 13-18,2022	Photographic techniques to questioned document,
14.	June 20-25, 2022	Discovery of facts by comparison with known material
15.	June 27-30, July1-2,2022	Fry test and Daubert standards
16.	July 4- 9,2022	Report writing, reasons for opinion, Presentation of expert evidence on documents case

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – VIII Semester (Even)**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: FSC:204**

**Paper: Forensic Medicine and Anthropology**

**Semester: 8<sup>th</sup>**

<b>Week</b>	<b>Dates</b>	<b>Topic(s)</b>
1.	April 1-2, 2022	Forensic Medicine: Characteristics and cause of death; Aphyxial death- Introduction, characteristics and types of asphyxia death (Hanging, strangulation, drowning etc)
2.	April 4-9, 2022	Thermal death and their medico legal aspects. Estimation of time since death, post mortem examination
3.	April 11-16,2022	Injuries: classification, types and characteristics of mechanical injuries, antimortem and post mortem injury,
4.	April 18-23, 2022	Artificial injury, grievous injury, and their medicolegal aspects. Investigation of sexual offences, abortion and infanticides
5.	April 25-30, 2022	Forensic Odontology: Definition, scope, structural variation and types of teeth.
6.	May 2-7,2022	Method, dental anomalies and their significance
7.	May 9-14, 2022	Bite marks: methods of collection, preservation, recording, comparison and their significance.
8.	May 16-21,2022	Forensic Anthropology: Definition, scope and problems, structure of bones, morphological study of human skeleton,
9.	May23-28, 2022	Comparative study of human and animal skeleton. Age, sex and stature determination from skeleton remains
10.	May 30-31- June 1-4,2022	Craniometry: introduction, methods and their importance in personal identification

11.	June 6-11, 2022	Osteometry introduction, methods and their importance in personal identification
12.	June 13-16, 2022	Personal Identification Techniques: portrait parley/ Bertillon system,
13.	June 13-18,2022	Superimposition techniques- photographic and video superimposition.
14.	June 20-25, 2022	Facial reconstruction: introduction, theory and methods, importance of tissue depth to reconstruct various facial futures
15.	June 27-30, July1-2,2022	Genital and congenital anomalies
16.	July 4- 9,2022	Determination of age and sex from teeth

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – IX Semester (Odd)**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: FSC 301**

**Paper: Forensic Ballistics And Explosives**

**Semester: 9<sup>th</sup>**

<b>Week</b>	<b>Date</b>	<b>Topic to be Covered</b>
1.	Oct 25-30, 2021	History and Background of Firearms, classification and characteristics of firearms, components of firearms
2.	Nov. 8-13, 2021	Firing mechanism, smooth bore and rifled bore firearms.
3.	Nov.15-20, 2021	Country made firearms: introduction, constructional features and identification.
4.	Nov. 22-27, 2021	Ammunition: classification and composition of cartridges, propellents, cartridge case, wads, compositional aspects of various types of bullets and shotgun projectile.
5.	Nov. 29-Dec. 4,2021	Forensic Ballistic: Definition and back ground, internal and external ballistics
6.	Dec.6-11, 2021	Forensic Ballistic: factors affecting internal and external ballistics such as size, shape and ignition of propellants, barrel length, pressure curve
7.	Dec.13-18, 2021	Recoil, ballistics coefficient, air resistance, rifling and bullet stability, measurements of trajectory parameters, ricochet phenomenon
8.	Dec.20- 24, 2021	Terminal Ballistics: factors affecting wound ballistics, Bullet penetration phenomena
9.	Dec 27, 2021 - Jan 1,2022	Terminal Ballistics; characteristic of rifled firearm injury and smooth bore firearm injury, Forensic evaluation of firearms injury.
10.	Jan 3-8, 2022	Firearms and Ammunition Linkage: principles, comparison of fired cartridge case and bullets. Gunshot residues: introduction, composition and its forensic evaluation,
11.	Jan.10-15, 2022	Firearms and Ammunition Linkage; chemical and instrumental methods of GSR analysis
12.	Jan. 17-22, 2022	Reconstruction of Shooting Incidence: theory of shooting reconstruction
13.	Jan. 24-29, 2022	Mathematics of shooting reconstruction, accidental discharge, determination of range and time of fire.
14.	Jan 31, Feb1-5, 2022	Shot pattern testing, laboratory examination of firearms. Law related to examination of firearms in Indian arms act.
15.	Feb. 7-12,2022	Explosive: Classification, types, composition and

		characteristic of low explosives, and high explosive such as black powder, NC, NG, TNT, RDX, PETN, HMX, Dynamite, ANFO etc..
16.	Feb. 14-19, 2022	Detonators, blasting cap, explosive train, IEDs and pyrotechniques. Explosion process and effects, effects of blast wave on structures and human.
17.	Feb. 21-22, 2022	Specific approach to scene of explosion, reconstruction of sequence of events, post blast residues, collection, analysis of explosion residues

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – IX Semester (Odd)**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: FSC 302**

**Paper: Computer Forensics and Recent Advances**

**Semester: 9<sup>th</sup>**

<b>Week</b>	<b>Dates</b>	<b>Topic(s)</b>
1.	Oct 25-30, 2021	Computer Crime: basics of computers, hardware accessories operating system and software. Types of computer crime
2.	Nov. 8-13 , 2021	networked computer crime, unauthorized access, program manipulation, software piracy
3.	Nov.15-20 , 2021	Cyber Crime: Introduction, Internet, definition, common principles, classification of cyber crimes. Hacking, virus,
4.	Nov. 22-27, 2021	Obscenity and pornography, encryption and description methods, Investigation of cyber crime: Search and seizure of computer system
5.	Nov. 29-Dec. 4,2021	Computer based evidence and jurisdiction. Tools for analysis
6.	Dec.6-11, 2021	Fundamental of Computer Security: risk assessment and mitigation developing secure system, security models, damage control,
7.	Dec.13-18 , 2021	Assessment and auditing, and network security, Recent advances in computer forensics
8.	Dec.20- 24, 2021	Computer simulation, image processing and pattern recognition
9.	Dec 27, 2021 - Jan 1,2022	Stenography and cryptography, Forensic linguistics, e- documents, digital signature.
10.	Jan 3-8, 2022	Quality Management (ISO/ IEC-17025, NABL): Introduction, general requirement for competence of testing, standardization and calibration of forensic laboratories.

11.	Jan.10-15, 2022	Management and technical requirements for quality assurance. Biometrics: definition, scope, types of biometric tool,
12.	Jan. 17-22, 2022	Biometrics fingerprint, face, Iris and retina imaging, ear,
13.	Jan. 24-29, 2022	Speech recognition, pattern comparison, human gait pattern.
14.	Jan 31, Feb1-5, 2022	Professional ethics and conduct of forensic expert, dealing with news media. Intellectual property right: copyright and patent.
15.	Feb. 7-12,2022	IT act 2000- introduction to offences and penalties
16.	Feb. 14-19, 2022	Revision
17.	Feb. 21-22, 2022	Revision

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – IX Semester (Odd)**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: FSC 303**

**Paper: DNA Profiling**

**Semester: 9<sup>th</sup>**

<b>Week</b>	<b>Dates</b>	<b>Topic(s)</b>
1.	Oct 25-30, 2021	Introduction of Human Genome: Human chromosomes and karyotype, human nuclear genome. Mutation-types and cause, gens and alleles, human genetics and heredity.
2.	Nov. 8-13 , 2021	Calculation of allele frequencies. types and properties of DNA, mt DNA, DNA modifying enzymes, restriction enzymes
3.	Nov.15-20 , 2021	Forensic DNA Profiling: History and development of DNA finger printing Basic Genotyping: VNTR, STR,
4.	Nov. 22-27, 2021	SNPs polymorphism and other classes of DNA polymorphism. DNA markers
5.	Nov. 29-Dec. 4,2021	Methods of DNA profiling: Introduction, principle, techniques of RFLP, STRs, SNP profiling
6.	Dec.6-11, 2021	Assessment of STR profiling their advantage and limitations. Gender identification: Y-STR and mt-DNA profiling.
7.	Dec.13-18 , 2021	DNA Amplification (PCR)- principle, method, factors affecting PCR, advantage of PCR based techniques over RFLP. Blotting techniques: Southern, Northern
8.	Dec.20- 24, 2021	Blotting techniques: Western, dot-, slot- and vacuum blotting.
9.	Dec 27, 2021 - Jan 1,2022	DNA sample preparation: sample sources for DNA, collection and preservation of samples for DNA testing, conventional and recent methods of DNA extraction, separation
10.	Jan 3-8, 2022	DNA Quantitation methods, , DNA sequencing.



		DNA data base- CODIS
11.	Jan.10-15, 2022	Nucleic acid hybridization: Preparation of nucleic acid probes for DNA profiling Single locus and multi locus probes, and cDNA probes; Methods of labeling of DNA probes- Radioactive and non-radioactive labeling
12.	Jan. 17-22, 2022	Detection methods, DNA Micro array technology. Forensic Issues: degraded DNA, contamination,
13.	Jan. 24-29, 2022	Forensic Issues: mixed samples and low copy number. Result interpretation, Quality assurance in DFP testing. Legal standards for admissibility of DNA profiling
14.	Jan 31, Feb.5, 2022	Forensic Signification of DNA Profiling: personal identification, paternity testing
15.	Feb. 7-12,2022	Forensic Signification of DNA Profiling: veterinary, agriculture and mass disaster.
16.	Feb. 14-19, 2022	Report writing and presentation of report in case of DNA profiling.
17.	Feb. 21-22, 2022	Revision

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – IX Semester (Odd)**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: Advances in Forensic chemistry II**

**Paper: FSC 304**

**Semester: 9<sup>th</sup>**

<b>Week</b>	<b>Date</b>	<b>Topic to be Covered</b>
1.	Oct 25-30, 2021	Analysis of Beverages: Alcoholic and non-alcoholic beverages and their composition,
2.	Nov. 8-13, 2021	Analysis of alcoholic beverages as per BIS and PFA Act,
3.	Nov.15-20, 2021	Detection and determination of ethanol, furfural, organic acids, aldehydes
4.	Nov. 22-27, 2021	Detection and determination of chloral hydrate and, methanol in liquors by color tests, TLC, GC, and GC-MS methods.
5.	Nov. 29-Dec. 4,2021	Analysis of petroleum products and residues: Distillation and fractionation, Standards/methods of commercial analysis of petroleum products as per ASTM and BIS,
6.	Dec.6-11, 2021	Analysis of traces of petroleum products in forensic exhibits, Comparison of petroleum products, Adulteration of petroleum products
7.	Dec.13-18, 2021	Oils and fats : introduction, analysis and characterization of various oils and fats
8.	Dec.20- 24, 2021	Analysis of gold & other metals in cheating cases
9.	Dec 27, 2021 - Jan 1,2022	Extraction and isolation of poisons/ drugs from biological samples: Volatile compounds: Industrial solvent acid and basic Distillation, Non-volatile organic compounds: Neutral non volatile compounds( pesticides/insecticides-oragnophosphorous compound, chlorinated, compounds, carbamates, and pyrethroids )
10.	Jan 3-8, 2022	Acidic and basic non volatile compounds -Stas-otto method, Dovbriey Nickolls (Ammonium sulphate) method, acid digest and Valov (Tungstate) methods, Solvent extraction,
11.	Jan.10-15, 2022	Toxic Cations: lead, mercury, arsenic -Dry Ashing and Wet digestion process,
12.	Jan. 17-22, 2022	Toxic Anions: Dialysis method, total alcoholic extraction method
13.	Jan. 24-29, 2022	Recent methods of sample extraction from body fluid: Solid phase extraction, Solid phase micro extraction techniques, liquid phase micro extraction methods
14.	Jan 31, Feb1-5, 2022	Examination process of suspected poison sample: chemical

		tests, TLC methods
15.	Feb. 7-12,2022	Examination process of suspected poison sample: UV Vis methods
16.	Feb. 14-19, 2022	Examination process of suspected poison sample: IR spectrometry, GC-MS
17.	Feb. 21-22, 2022	Examination process of suspected poison sample: TLC methods

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – IX Semester (Odd)**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: FSC 305**

**Paper: Advance forensic biology 1**

**Semester: 9<sup>th</sup>**

<b>Week</b>	<b>Date</b>	<b>Topic to be Covered</b>
1.	Oct 25-30, 2021	Hair examination: Hair structure, growth and replacement of hair. Identification: Species of origin, variation in different major population groups, somatic origin.
2.	Nov. 8-13, 2021	Individualization: Blood grouping, enzyme typing and DNA typing
3.	Nov.15-20, 2021	Botanical evidences: Introduction, types, location, collection evaluation and forensic significance. Wood: Type of wood and their identification and comparison.
4.	Nov. 22-27, 2021	Pollens: Structure, function, methods of identification and comparison.
5.	Nov. 29-Dec. 4,2021	Diatoms: Nature, location, structure, extraction from various body tissues, including bone marrow preparation of slides, methods of identification and comparison, forensic significance
6.	Dec.6-11, 2021	Leaves: Identification of various types of leaves and their anatomy, methods of comparison.
7.	Dec.13-18, 2021	Forensic Microbiology: Types and identification of microbial organisms of forensic significance.
8.	Dec.20- 24, 2021	Wild Life Forensics: Introduction, importance, protected and endangered species of Animals and Plants
9.	Dec 27, 2021 - Jan 1,2022	Identification of wild life materials such as skin, fur, bones, nails, horn, teeth, flowers and plants
10.	Jan 3-8, 2022	Conventional and modern methods Identification of Pug marks of various animals.
11.	Jan.10-15, 2022	Forensic Entomology: Introduction, general entomology
12.	Jan. 17-22, 2022	Arthropod biology
13.	Jan. 24-29, 2022	Insects of forensic importance
14.	Jan 31, Feb1-5, 2022	collection of entomological evidence during death investigations
15.	Feb. 7-12,2022	The role of aquatic insects in forensic investigations
16.	Feb. 14-19, 2022	Insect succession on carrion and its relationship to determine time since death
17.	Feb. 21-22, 2022	its application to Forensic Entomology

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – X Semester (Even)**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: FSC 401**

**Paper: Forensic Physics**

**Semester: 10<sup>th</sup>**

<b>Week</b>	<b>Date</b>	<b>Topic to be Covered</b>
1.	April 1-2, 2022	Forensic Physics: Introduction and scope, tools and techniques, examination of vehicle in case of road traffic accident, skid marks evaluation.
2.	April 4-9, 2022	Glass: Types of glass and their composition-soda-lime, boro-silicate, safety glass, laminated, light-sensitive, tampered/ toughened, wire glass, coloured glass
3.	April 11-16,2022	Glass: Matching and comparison. Forensic examinations of glass fractures- rib marks, hackle marks, cone fracture, wavy, backward fragmentation, concentric and radial fractures. Colour, fluorescence, physical measurements,
4.	April 18-23, 2022	Glass: refractive index, density gradient, becke-line, specific gravity examination and elemental analysis of glass evidence.
5.	April 25-30, 2022	Paint: Types of paint and their composition, macroscopic and microscopic analysis of paint pigments, pigment distribution, micro-chemical analysis- solubility test
6.	May 2-7,2022	Paint: pyrolysis gas chromatography, TLC, colorimetric analysis, IR spectroscopy and X-ray diffraction Elemental analysis, mass spectrometer, interpretation of paint evidence.
7.	May 9-14, 2022	Fibre: Types of fibres, forensic aspects of fibre examination- fluorescence, optical properties, refractive index, Birefringence, dye analysis. Physical fit and chemical testing.
8.	May 16-21,2022	Fibre:TLC, IR-micro spectroscopy, Py-MS. Difference between natural and man-made fibres .
9.	May23-28, 2022	Miscellaneous Evidences: wire, broken bangles, seals, counterfeit coins.
10.	May 30-31- June 1-4,2022	Miscellaneous Evidences ropes/ strings, synthetic fibers etc their introduction & forensic examination.
11.	June 6-11, 2022	Building Materials: Cement- composition, types, Forensic Analysis- bromoform test.

12.	June 13-16, 2022	Building Materials: fineness test, ignition-loss test, Identification of adulterated cement. Mortar and concrete analysis.
13.	June 13-18,2022	Soil: Types and composition of soil, sample preparation, removal of contaminants, colour, molecular particle size distribution, turbidity test .
14.	June 20-25, 2022	Soil: pH measurements, microscopic examination density gradient analysis, ignition-loss test, elemental analysis, interpretation of soil evidence.
15.	June 27-30, July1-2,2022	Tool Marks: theory, types of tool marks, and their forensic examination, Restoration methods of obliterated marks.
16.	July 4- 9,2022	Voice Analysis and Tape Authentication: theory of voice production, theory of voice identification, the sound spectrograph, voice comparison -standards and methods of voice comparison, significance

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) - X Semester (Even)**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: FSC 402**

**Paper: Forensic dactylography and other impressions**

**Semester: 10<sup>th</sup>**

<b>Week</b>	<b>Dates</b>	<b>Topic(s)</b>
1.	April 1-2, 2022	History and development of finger prints
2.	April 4-9, 2022	Morphology of ridged skin, types, and variations in finger prints: Causes and genetics, population variations. Finger Prints Bureau.
3.	April 11-16,2022	Sample collection: Basics of taking inked prints, collection of prints samples of living and dead, devices and material for recording prints.
4.	April 18-23, 2022	Classification of finger Prints, pattern types, pattern area.
5.	April 25-30, 2022	Extension of Henry system searching of finger prints, single finger print.
6.	May 2-7,2022	Chance Finger Prints: Latent prints, plastic prints, causes, composition of sweat.
7.	May 9-14, 2022	Development of latent finger prints: powder methods: such as fluorescent powder, magnetic powder. Fuming methods: Iodine and cyanoacrylate methods.
8.	May 16-21,2022	Chemical methods: Ninhydrin and its analogue silver nitrate, application of laser technologies, metal deposition method. Biological methods of development of latent prints on skin.
9.	May23-28, 2022	Latent print processing Systematic approach to latent print processing, preserving and lifting of finger prints.
10.	May 30-31- June 1-4,2022	Photography of Finger Prints, comparison of finger prints: basis of comparison, class characteristics, individual characteristics, various types of ridge characteristics
11.	June 6-11, 2022	Automatic Finger Print Identification system (AFIS) and its variants
12.	June 13-16, 2022	Digital Image processing of finger prints and their enhancement. Presentation of expert evidence on finger prints in court
13.	June 13-18,2022	Foot / footwear/ introduction, class and individual characteristics, types, collection, preservation and forensic examination and evaluation of impressions, Gait pattern.

14.	June 20-25, 2022	Tyre impressions: introduction, class and individual characteristics, types, collection, preservation and forensic examination and evaluation of impressions
15.	June 27-30, July 1-2, 2022	Ear Prints – Nature, location, collection, forensic examination, and significance.
16.	July 4- 9, 2022	Lip Prints- Nature, location, collection, forensic examination, and significance.



**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – X Semester (Even)**  
**Session- 2021-22**

**Class: M.Sc. Forensic Science**

**Subject: Advances in Forensic chemistry II**

**Paper: FSC 403**

**Semester: 10<sup>th</sup>**

<b>Week</b>	<b>Date</b>	<b>Topic to be Covered</b>
1.	April 1-2, 2022	Analysis of Narcotic Drugs and Psychotropic Substances: Introduction classification of narcotic substances, natural narcotics, semi synthetic and synthetic narcotic substances.
2.	April 4-9, 2022	Opiate: extraction of alkaloids from plant materials, a analysis of opium alkaloids, and derivatives using spot tests, microcrystal tests,
3.	April 11-16,2022	Opiate: TLC, UV- vis spectrometry, IR spectrometry, GC-MS
4.	April 18-23, 2022	Cannabis: introduction, chemistry, analysis by spot tests
5.	April 25-30, 2022	Cannabis: TLC, and UV, and IR, spectrometry, GC – MS
6.	May 2-7,2022	Barbiturates: chemistry, types, extraction and isolation
7.	May 9-14, 2022	Barbiturates: , characterization by spot tests, TLC, and IR spectrometry, HPLC – MS
8.	May 16-21,2022	Benzodiazepines: Introduction, types and classification, chemistry, characterization by spot tests, TLC, and UV and IR spectrometry, GC – MS etc
9.	May23-28, 2022	Amphetamines: chemistry, characterization by spot tests, TLC, and UV and IR spectrometry, GC – MS, NMR etc.
10.	May 30-31- June 1-4,2022	Hallucinogens (LSD, psilocybine and mescaline): Introduction, analysis: spot tests, TLC, and IR spectrometry, HPLC – MS, GC- MS
11.	June 6-11, 2022	Plants poisons: Introduction and classification of plants alkaloids. Analysis of different plants poisons of forensic significance using spot tests, microcrystal tests, TLC and other sophisticated techniques.
12.	June 13-16, 2022	Poisonous seeds: Abrusprecatorius, Atropa belladonna, Argemone mexicana
13.	June 13-18,2022	Cerberathevetia, Croton tiglium, Datura fastuosa, Ricinus communis
14.	June 20-25, 2022	Poisonous fruits: Semicarpus anacardium, Urginea scilla.
15.	June 27-30, July1-2,2022	Poisonous roots: Digitalis, Aconitum napellus
16.	July 4- 9,2022	Plumbago rosea. Poisonous Mushroom

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – X Semester (Even)**  
**Session- 2021-22**


**Class: M.Sc. Forensic Science**

**Subject: FSC 404**

**Paper: Advance Forensic Biology II**

**Semester: 10<sup>th</sup>**

<b>Week</b>	<b>Date</b>	<b>Topic to be Covered</b>
1.	April 1-2, 2022	Immunology: Immune system, immune response, innate and acquired immunity and antigens, haptenes and adjuvants.
2.	April 4-9, 2022	Immunoglobulin: Types, physio-chemical properties and function, raising of antisera
3.	April 11-16,2022	Lectins: Forensic significance, buffers and serological reagents, methods of sterilization employed for serological work.
4.	April 18-23, 2022	Antigen-Antibody Reactions: Precipitation, agglutination, complement, neutralization, immunofluorescence.
5.	April 25-30, 2022	HLA system: Its applications in paternity testing, pitfalls of HLA system.
6.	May 2-7,2022	Forensic examination of Body fluids: Blood: Identification (Preliminary and confirmatory tests)
7.	May 9-14, 2022	Species of origin; Immunodiffusion and Immunoelectrophoresis
8.	May 16-21,2022	Individualization: Blood grouping, enzyme typing
9.	May23-28, 2022	Semen: Composition, functions and morphology of spermatozoa
10.	May 30-31- June 1-4,2022	Identification and preliminary test
11.	June 6-11, 2022	Confirmatory tests including Azoospermic semen stains
12.	June 13-16, 2022	Forensic significance of saliva, sweat, milk, urine
13.	June 13-18,2022	Faecal matter, vaginal secretions and tests for their identification including the presence of blood group specific ABH substances.
14.	June 20-25, 2022	Polymorphic enzymes: Forensic significance, identification from fresh blood and stains.
15.	June 27-30, July1-2,2022	Paternity disputes: Causes, Various serological methods
16.	July 4- 9,2022	Biochemical methods and calculation of paternity index probability for paternity and maternity

		 <b>HEAD</b> <b>Chemistry Department</b> <b>Dyal Singh College, KARNAL</b>
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