

**Weekly Lesson Plan**  
**B.Sc. (Forensic Science) - I Semester (Odd)**  
**Session- 2018-19**

**Subject:** Forensic Science

**Paper I:** Basics of Forensic Science

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

Week	Dates	Paper	Topic(s)
1.	July 13-14,2018	I	Introduction to the syllabus Introduction, Definition, need , significance and scope of Forensic Science
		II	Crime scene investigation: Definition of crime scene, crimes without scene
2.	July 16-21,2018	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.	July 23- 28, 2018	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.	July 30- Aug. 4 ,2018	I	Forensic Medicine, Forensic Toxicology, Forensic Osteology
		II	Signification and value of physical evidence, linkage between crime scene, victim and criminal
5.	Aug. 6 -11,2018	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.	Aug. 13 -18 ,2018	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.	Aug. 20 -25 ,2018	I	Wildlife Forensic, DNA profiling

		II	Duties of crime scene investigator, specialized personnel at the crime scene: biological or chemical terrorist crime scene
8.	Aug. 27- Sep. 1, 2018	I	Forensic Odontology, Forensic Physics
		II	Processing of scene of crime: plan of action, protection of scene of crime
9.	Sep.3 -8 ,2018	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.	Sep.10 -15,2018	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.	Sep.17-22 ,2018	I	Legal admissibility of various evidences, corpus delicti, modus operandi.
		II	Importance of FSL, National and International scenario of FSL,
12.	Sep. 24 -29, 2018	I	Multi professional and multi personal aspects of forensic science
		II	Facilities provided in forensic science laboratory. Ethical issue in FSL
13.	Oct. 1-6, 2018	I	Professional standards for practice of Criminalistics
		II	Criminal behavior: Introduction of criminal behavior , theories of criminal behavior: psychogenic theory,
14.	Oct. 8-13, 2018	I	Ethical issue in Forensic Science: Definition of ethics.
		II	classical and non -classical theories, biological theories, physiological theories
15.	Oct. 15-20, 2018	I	Sanction against expert for unethical conduct.
			Economic theory, geographical theories, and

		II	sociological theories.
16.	Oct. 22-27, 2018	I	Revision
		II	
17.	Oct. 29- Nov. 5, 2018	I	Revision
		II	

**Weekly Lesson Plan**  
**B.Sc. (Forensic Science) - II Semester (Even)**  
**Session- 2018-19**

**Subject:** Forensic Science

**Paper I:** Crime Detection

**Paper II:** Forensic Evidences

Week	Dates	Paper	Topic(s)
1.	Jan. 1-5,2019	I	Introduction to the syllabus Organization set up of Forensic Science Laboratory: Structure and function of SFSL,
		II	Definition, types, class and individual characteristics, Principle of exchange, General information provided by physical evidences.
2.	Jan. 7-12,2019	I	RFSL, CFSL and facility provided, MFSL
		II	Different search methods for locating physical evidences at scene of crime, Chain of Custody
3.	Jan. 14-19, 2019	I	Directorate of Forensic Science Service. Police and Forensic scientist relationship
		II	Biological samples Blood, semen, Saliva, urine, vomit, fecal material, hair etc
4.	Jan. 21-25,2019	I	Cr ime detect ion agency: Organization set up and functioning of GEQD, CFI, FB, and NCRB.
		II	Botanical samples - Wood, leaves, pollens, seeds, diatoms etc.
5.	Jan. 28 -Feb 2,2019	I	National Institute of Criminology and Forensic science, Cr ime investigation department,
		II	Preservation, Packing, labeling, transportation and forwarding of the following physical evidences.
6.	Feb 4-9,2019	I	National Investigation Agency, World Anti-Doping Agency,
		II	Chemical samples volatile liquids, nonvolatile liquids, flammable liquids, solid chemical etc.
7.	Feb.11-16,2019	I	Central Bureau of Investigation, National Police Academy
		II	Toxicological samples -viscera, adulterated food stuff , blood, urine, vomit etc. Post mortem

			samples
8.	Feb. 18-23,2019	I	Organization set up and functioning of CFI, FB, and NCRB.
		II	Preservation, packing, labeling, handling, transportation and forwarding of the following physical evidences.
9.	Feb 25- March 2, 2019	I	Centre for Cellular and Molecular Biology Intelligence Bureau, Research Analysis Wing,
		II	Ballistics samples- firearms, ammunitions, GSR etc.
10.	March 4-9,2019	I	Bureau of Police Research & Development, Organization.
		II	Fingerprint , impressions and documents
11.	March, 11-16, 2019	I	National Drug Testing Laboratory and OCTOPUS
		II	Physical samples - fiber, glass, textile, wire & cables, dust & soil, cement etc.
12.	March 25 - 30,2019	I	Fingerprint Bureau Investigation, Crime Investigation Agency
		II	Recognition of Bloodstain Patterns: History of Bloodstain Pattern interpretation,
13.	April 1-6, 2019	I	Defense Research and Development Organization
		II	Properties of human blood, target surface considerations, Size, Shape and Directionality of bloodstains
14.	April, 8-13, 2019	I	Central Police Organization, Central Detective Training School ,
		II	Spattered blood, other Bloodstain Pat terns, interpretation of Bloodstain on clothing and footwear.
15.	April 15-20,2019	I	Cr ime Scene Investigation, Drug Enforcement Administrator & Interpol, etc.
		II	Documentation and Photography for Bloodstain Pat tern Analysis
16.	April 22-27,2019	I	Revision
17.	April 29-30,2019	II	Revision

**Weekly Lesson Plan**  
**B.Sc. (Forensic Science) - III Semester (Odd)**  
**Session- 2018-19**

**Subject:** Forensic Science

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

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

Week	Date	Paper	Topic to be Covered
1.	July 13-14,2018	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.	July 16-21,2018	I	Polarizing microscope, comparative microscope, scanning electron microscope (SEM), transmission electron microscope (TEM)
		II	Various types of forensic documents
3.	July 23- 28, 2018	I	Chromatographic parameters – capacity term, selectivity term and efficiency term
		II	genuine and forged documents, classification of forensic documents: Specimen writings, admitted writings
4.	July 30- Aug. 4 ,2018	I	HETP, column efficiency – Van Deemter equation and curve
		II	Handling, preservation and marking of documents, natural variation and disguise in writing
5.	Aug. 6 -11,2018	I	Capillary columns, detectors for GLC and HPLC,
		II	Principle of Handwriting Identification, general and individual characteristics

6.	Aug. 13 -18 ,2018	I	temperature programming in GLC and gradient elution in HPLC
		II	Basic Tools needed for forensic documents examination and their use
7.	Aug. 20 -25 ,2018	I	derivatisation for GLC
		II	Natural variations, fundamental divergences, Alternations in documents: erases, additions, overwriting and obliterations
8.	Aug. 27- Sep. 1, 2018	I	derivatisation forHPLC.
		II	Determination of age of Documents, Sequence of Strokes
9.	Sep.3 -8 ,2018	I	Forensic applicationsGC-MS
		II	Various types of forgeries and their detection. Analysis of paper and inks.
10.	Sep.10 -15,2018	I	Forensic applicationsHPLC-MS
		II	Scientific Report writing: - Components of reports and report format relating toCrime Scene and Laboratory findings
11.	Sep.17-22 ,2018	I	Forensic applications Py-GC-MS.
		II	Stages in criminal proceedings: - FIR,Investigation, prosecution and trial stage. Remand and bail processes.
12.	Sep. 24 -29, 2018	I	Basic principles and applications of – UV-Vis spectroscopy
		II	Crimes under Special and Local laws: - Crimes under Dowry Prohibition Act
13.	Oct. 1-6, 2018	I	Infrared spectroscopy
		II	Crimes underImmoral Traffic Act, Specific offences under the Indian Penal Code (Homicide, sexual offences, offences against property)
14.	Oct. 8-13, 2018	I	Raman spectroscopy,Mass spectroscopy

		II	Classification of offenses: Cognizable and Non cognizable offence
15.	Oct. 15-20, 2018	I	NMR spectroscopy
		II	Bailable and non bailable offences,
16.	Oct. 22-27, 2018	I	Mass spectroscopy
		II	Role of media, Role & Functions of Police
17.	Oct. 29- Nov. 5, 2018	I	ESR spectroscopy
		II	compoundable and non-compoundable offences



**Weekly Lesson Plan**  
**B.Sc. (Forensic Science) - IV Semester (Even)**  
**Session- 2018-19**

**Subject:** Forensic Science

**Paper I:** Forensic Medicine

**Paper II:** Forensic Chemistry and Toxicology

Week	Date	Paper	Topic to be Covered
1.	Jan. 1-5,2019	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.	Jan. 7-12,2019	I	Documentary evidence: - Medical certificates, medical reports, dying declaration
		II	Poisoning Action of Poison
3.	Jan. 14-19, 2019	I	Understanding laws and ethics of medical practice. Medico legal aspects of death
		II	Poisoning Action of Poison
4.	Jan. 21-25,2019	I	Diagnosis of death- somatic & molecular
		II	Classification of poison
5.	Jan. 28 -Feb 2,2019	I	Early and intermediate changes following death
		II	Isolation and analysis of metallic poison As
6.	Feb 4-9,2019	I	Late changes after death - putrefaction, autolysis, bacterial action, factors affecting these changes
		II	Isolation and analysis of metallic poison Sb
7.	Feb.11-16,2019	I	Determination of time since death, including by histopathological methods.
		II	Isolation and analysis of metallic poison Pb
8.	Feb. 18-23,2019	I	Medico legal investigation of sexual offences, including examination of victims and suspects

		II	Isolation and analysis of metallic poison Zn
9.	Feb 25- March 2, 2019	I	Medico legal aspects of 20 death
		II	Analysis of ethyl alcohol in biological fluids
10.	March 4-9,2019	I	Causes of death such as asphyxia, electrocution, thermal trauma, heat burns, starvation, natural death, sudden death, death by accident
		II	Analysis of methanol
11.	March, 11-16, 2019	I	Medico legal aspects of wounds: -medical and legal definition of wounds
		II	Opium, Semi-synthetic opiates
12.	March 25 - 30,2019	I	Types of mechanical and regional injuries, aging of wounds,
		II	Cannabis drugs such as Bhang, Ganja and Charas LSD and Amphetamine
13.	April 1-6, 2019	I	Difference between suicidal, homicidal and accidental wounds
		II	General Idea about NDPS Act. Sections 15 – 32, 37
14.	April, 8-13, 2019	I	Injuries, Asphyxia, Unnatural Offences (Sexual Offences)
		II	Snake Venom
15.	April 15-20,2019	I	Time since death
		II	Benzodiazepines
16.	April 22-27,2019	I	Identification of living
		II	Phenothiazines
17.	April 29-30,2019	I	Identification of dead
		II	Barbiturates

**Weekly Lesson Plan**  
**B.Sc. (Forensic Science) - V Semester (Odd)**  
**Session- 2018-19**

**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.	July 13-14,2018	I II	Introduction to the syllabus Fingerprints as evidence: Its recognition, Methods of digestion of samples with special reference to microwave digestion
2.	July 16-21,2018	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.	July 23- 28, 2018	I II	Formation of ridges, Fingerprints patterns, Pattern Areas Solvent extraction, solid phase extraction
4.	July 30- Aug. 4 ,2018	I II	General and Individual characteristics of fingerprint, Composition of Sweat Solid phase micro extraction, supercritical fluid extract ion, micellar extraction
5.	Aug. 6 -11,2018	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.	Aug. 13 -18 ,2018	I II	Fingerprint Bureau. AFIS (Automated Dialysis and electro dialysis, head spectra technique
7.	Aug. 20 -25 ,2018	I II	Fingerprint Identification System, Search for Fingerprints, Chance Fingerprints, Latent Fingerprints Electrophoresis – Gel electrophoresis basic principles and applications
8.	Aug. 27- Sep. 1, 2018	I	Various methods of development of fingerprints: conventional methods, physical and chemical fiorescent method,

		II	Capillary electrophoresis, basic principles and applications
9.	Sep.3 -8 ,2018	I	Magnetic Powder method, fuming method, laser method.
		II	Laser system – purity of spectral lines, coherence length and coherence time, spatial coherence of a source
10.	Sep.10 -15,2018	I	Taking fingerprints from living and dead persons. Different Types of Surfaces (Porous, Semi-porous, non-porous)
		II	Einstein's A and B coefficients, coherence of induced emissions, conditions for laser action, existence of a meta stable state
11.	Sep.17-22 ,2018	I	Impressions and Prints: Footprints: Importance, Gait Pattern, Casting of footprints in Different medium, Taking Control samples.
		II	Population by inversion by pumping and cavity. He -Ne and Ruby laser.
12.	Sep. 24 -29, 2018	I	Lip Prints- Nature, Location, collection and evaluation, taking control samples, Forensic Significance.
		II	Application of Laser polarization and including higher order and
13.	Oct. 1-6, 2018	I	Tyre Marks/prints and Skid marks, taking control samples
		II	Generation of harmonics, momentum mismatch and choice of right crystal and direction for compensation..
14.	Oct. 8-13, 2018	I	Bite Marks- Nature, Location, collection and evaluation, taking control samples, Forensic Significance.
		II	Basic principles and applications of and gel permeation chromatography
15.	Oct. 15-20, 2018	I	Ear Prints- Nature, Location, collection and evaluation, taking control samples, Forensic Significance
		II	Basic principles and applications of adsorption, ion exchange
16.	Oct. 22-27, 2018	I	Revision
		II	
17.	Oct. 29- Nov. 5, 2018	I	Revision
		II	

**Weekly Lesson Plan**  
**B.Sc. (Forensic Science) - VI Semester (Even)**  
**Session- 2018-2019**

**Subject: Forensic Science**

**Paper I: Computer Forensics and Biometrics**

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

Week	Dates	Paper	Topic(s)
1.	Jan. 1-5,2019	I II	Computer and Cyber Crimes: Introduction  Immunology: Immune System, immune response Innate and acquired immunity and antigens, heptanes and adjuvant.
2.	Jan. 7-12,2019	I II	Stand alone computer crimes–Printing of counterfeit currency notes Immunoglobulin: Types, Physio-chemical properties and function, raising of antisera.
3.	Jan. 14-19, 2019	I II	Computer Scanners, Imaging Software Photoshop, Photo Paint etc. Lectins: Forensic significance, buffers and serological reagents, methods of sterilization employed for serological work.
4.	Jan. 21-25,2019	I II	Software piracy, Data Recovery. Antigen-Antibody Reactions: Precipitation, agglutination, complement, neutralization, immune fluorescence.
5.	Jan. 28 -Feb 2,2019	I II	HLA system: Its applications in paternity testing, pitfalls of HLA system. Forensic examination of Body Fluids : Species of Origin (Immunodiffusion and Immunoelectrophoresis)
6.	Feb 4-9,2019	I II	Networked Computer Crimes: Unauthorized access and interception Individualization: Blood Grouping, Enzyme Typing.
7.	Feb.11-16,2019	I II	Hacking, Computer Viruses, Programme manipulations Computer Security, DNA Profiling : Introduction, History of DNA Typing, human genetics – heredity, alleles,
8.	Feb. 18-23,2019	I	Internet, use of Biometric methods with special

		II	reference to personal identification. Mutations and population genetics, molecular biology of DNA, variations, polymorphism
9.	Feb 25- March 2, 2019	I II	Image Processing: Introduction and Process, DNA typing systems- RELP analysis. PCR amplifications,
10.	March 4-9,2019	I II	Image Enhancement and Restoration. Sequence polymorphism Mitochondrial DNA, evaluation of results,
11.	March, 11-16, 2019	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.	March 25 - 30,2019	I II	Methods for digital video recording, Analysis of SNP, Y-STR,
13.	April 1-6, 2019	I II	Investigation of Integrity of Images and Videos. New and future technologies: DNA chips, SNPs and limitations of DNA profiling
14.	April, 8-13, 2019	I II	Digitalization Techniques, Compression, Encryption methods Forensic Significance of DNA Profiling: Applications in disputed paternity cases, child swapping, missing person's identity – civil immigrations, veterinary, wildlife and agriculture cases
15.	April 15-20,2019	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.

16.	April 22-27,2019	I	Revision
		II	Revision
17.	April 29-30,2019	I	Revision
		II	Revision

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) - VII Semester (Odd)**  
**Session- 2018-2019**

**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.	July 13-14,2018	Forensic Science : History, Development, and need of Forensic Science
2.	July 16-21,2018	Forensic Science: Forensic Science and its International Perspective, Ethics in Forensic Science
3.	July 23- 28, 2018	Forensic Science: Duties of Forensic Scientist, Basic Principles of Forensic Science.
4.	July 30- Aug. 4,2018	Organizational setup of Forensic Science Laboratories: CFSL, FSL, GEQD, DFSS, Central Detective Training School
5.	Aug. 6 -11,2018	Organizational setup of Forensic Science Laboratories: NCRB, Mobile Forensic Science Laboratory, Branches of Forensic Science.
6.	Aug. 13 -18,2018	Crime Scene Investigation: Introduction, characteristics and types of crime scene, physical evidences, Protection and recording of crime scene
7.	Aug. 20 -25,2018	Crime Scene Investigation: Search of physical clues, preservation, chain of custody, packing and forwarding of physical clues, blood pattern analysis.
8.	Aug. 27- Sep. 1, 2018	Fingerprints : introduction, types of fingerprints
9.	Sep.3 -8,2018	Fingerprints: searching methods, collection and preservation and evaluation.
10.	Sep.10 -15,2018	Forensic Photography: Basic principles and techniques of Black & White and colour photography,
11.	Sep.17-22,2018	Forensic Photography: IR photography, working of digital camera and basics of digital imaging, digital photography,
12.	Sep. 24 -29, 2018	Forensic Photography: Digital videography. Crime scene and laboratory photography, microphotography.
13.	Oct. 1-6, 2018	Criminal Justice System: Structure of Police, Prosecution & Judicial Organizations
14.	Oct. 8-13, 2018	Criminal Justice System: Inquest, evidence in enquiries and trials, expert witness.
15.	Oct. 15-20, 2018	Criminal Justice System: Admissibility of forensic



		reports in court, expert testimony.
16.	Oct. 22-27, 2018	Computers: Introduction, History of Digital computer, computer organization-hardware
17.	Oct. 29- Nov. 5, 2018	Computers: Circuits for interfacing computer to instruments, computer scanners, imaging softwares (Photo paint, Photoshop etc.), MS word, Data library

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) - VII Semester (Odd)**  
**Session- 2018-2019**

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

**Subject: FSC 102**

**Paper: Instrumental Analysis I**

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

<b>Week</b>	<b>Dates</b>	<b>Topic(s)</b>
1.	July 13-14,2018	Microscopy: Principles and techniques of Microscopy: Light Microscope, Phase contrast, Fluorescence, stereomicroscope
2.	July 16-21,2018	Polarizing, comparison and Electron Microscope (Scanning, Transmission) Forensic application of microscopy. Microspectrophotometry
3.	July 23- 28, 2018	Chromatography: Introduction Basic principles, types of chromatography, partition and adsorption chromatography techniques.
4.	July 30- Aug. 4 ,2018	Thin Layer Chromatography: introduction theory and Instrumentation of TLC, HPTLC, stationary phases, visualization methods, densitometer, applications.
5.	Aug. 6 -11,2018	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.	Aug. 13 -18 ,2018	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.	Aug. 20 -25 ,2018	Spectroscopy: Basic principles, property of EMR, interaction of radiation with matters, atomic and molecular spectra; source of radiations
8.	Aug. 27- Sep. 1, 2018	Radiations detection devices, wavelength selector, basic components of absorption and

		emission spectroscopy.
9.	Sep.3 -8 ,2018	UV-Visible, IR and Raman spectroscopy: introduction, principles, instrumentation, single beam and double beam spectrophotometer, interpretation of spectra,
10.	Sep.10 -15,2018	Qualitative and quantitative analysis: advantage and limitations of UV, IR and Raman spectrophotometer, forensic applications.
11.	Sep.17-22 ,2018	Atomic absorption/ emission spectroscopy: introduction, principles, Instrumentation; types of AAS, ICP-AES,
12.	Sep. 24 -29, 2018	Quantitative and qualitative analysis, advantage and limitations of AAS and AES, their forensic applications.
13.	Oct. 1-6, 2018	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.	Oct. 8-13, 2018	NMR Spectroscopy, Neutron Activation Analysis: introduction and principle, techniques and forensic application
15.	Oct. 15-20, 2018	X-rays spectroscopy; introduction, principles of X ray diffraction and X ray fluorescence technique, their forensic applications.
16.	Oct. 22-27, 2018	Revision
17.	Oct. 29- Nov. 5, 2018	Revision

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) - VII Semester (Odd)**  
**Session- 2018-2019**

**Class: M.Sc. 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.	July 13-14,2018	Forensic Biology: types of biological evidences, identification, collection, preservation, and significance of biological evidence.
2.	July 16-21,2018	Hair and fibers: classification, characteristics, forensic identification and evaluation of hair and fibers evidences
3.	July 23- 28, 2018	Microbial forensics and Entomology: Organisms of Forensic significance, types, isolation and identification.
4.	July 30- Aug. 4 ,2018	Introduction to forensic Entomology, insects / invertebrates of forensic importance, collection of entomological evidence, their life cycle,
5.	Aug. 6 -11,2018	The role of aquatic insects in forensics, insects succession on carrion and its relationship to determine time since death.
6.	Aug. 13 -18 ,2018	Forensic Botany: Introduction, types, significance, location, collection and Forensic evaluation of botanical evidences such as pollen grains, leaves, seeds etc.
7.	Aug. 20 -25 ,2018	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.	Aug. 27- Sep. 1, 2018	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.	Sep.3 -8 ,2018	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.	Sep.10 -15,2018	Forensic Serology: Blood groups – history, biochemistry and genetics of ABO, Rh, MN and other blood group systems, secretors and non secretors, rare alleles.
11.	Sep.17-22 ,2018	Blood identification, Methods of ABO blood grouping from dried blood stains and other body fluids, species identification.
12.	Sep. 24 -29, 2018	Polymorphic Enzymes -PGM, GLO-I, ESD, EAP and their forensic significance
13.	Oct. 1-6, 2018	Polymorphic Enzymes- AK, ADA and their forensic significance
14.	Oct. 8-13, 2018	Body fluids: semen- Introduction, composition, human spermatozoa morphology, Forensic examination and evaluation.
15.	Oct. 15-20, 2018	Sex determination, X chromosome Inactivation- Barr body.
16.	Oct. 22-27, 2018	Other biological fluid clues such as saliva, sweat, their introduction & collection preservation and examination,
17.	Oct. 29- Nov. 5, 2018	Other biological fluid clues such as urine and milk etc their introduction & collection preservation and examination.

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) - VII Semester (Odd)**  
**Session- 2018-2019**

**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.	July 13-14,2018	Introduction to Forensic Psychology; scope & ethics
2.	July 16-21,2018	Distinction between Forensic and therapeutic evaluation, Genetic basis of Psychology
3.	July 23- 28, 2018	Legal aspect of forensic psychology practice
4.	July 30- Aug. 4,2018	Forensic Psychiatry: Introduction, classification of mental disorders
5.	Aug. 6 -11,2018	Forensic Psychiatric Examination, Scope of psychiatric examination in criminal and civil cases
6.	Aug. 13 -18,2018	Types and classification of crimes and criminals
7.	Aug. 20 -25,2018	Criminal Profiling, and Modus Operandi
8.	Aug. 27- Sep. 1, 2018	Brain Fingerprinting, Polygraph
9.	Sep.3 -8,2018	Hypnosis, Narco Analysis, role in criminal justice system
10.	Sep.10 -15,2018	Arithmetic mean, mode and median Definition, calculation and its properties.
11.	Sep.17-22,2018	Range, Interquartile range, Quartile deviation, Mean deviation and standard deviation.
12.	Sep. 24 -29, 2018	Correlation
13.	Oct. 1-6, 2018	Regression analysis
14.	Oct. 8-13, 2018	Concept of sampling
15.	Oct. 15-20, 2018	Sampling methods
16.	Oct. 22-27, 2018	Test of significance
17.	Oct. 29- Nov. 5, 2018	Chi-square analysis

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) - VIII Semester (Even)**  
**Session- 2018-2019**

**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.	Jan. 1-5, 2019	Introduction, Colour & Spot test, microcrystal tests, inorganic and organic analysis.
2.	Jan. 7-12, 2019	Analysis of Beverages: alcoholic and nonalcoholic beverages, illicit liquors, detection and estimation of ethanol. Breathe alcohol analyzer.
3.	Jan. 14-19, 2019	Analysis of trace evidence – cosmetics dyes, pigments, clues of trap cases.
4.	Jan. 21-25,2019	Introduction, standard methods of analysis of petroleum product for adulteration as per BIS.
5.	Jan. 28 -Feb 2,2019	Arson Investigation: chemistry of fire, Forensic investigation of arson cases.
6.	Feb 4-9,2019	introduction, classification, drug of abuse in sports. General chemistry and analysis of narcotic drugs and psychotropic substances
7.	Feb.11-16,2019	cocaine, cannabis, barbiturates, benzodiazepines, amphetamine, opium, hallucinogens, designer drugs.
8.	Feb. 18-23,2019	Introduction of NDPS act, drugs and cosmetic act.
9.	Feb 25- March 2, 2019	Introduction and scope of forensic toxicology, classification of poisons, legal aspects of poisoning, types of poisoning
10.	March 4-9,2019	Antidotes, factors modifying action of poisons, LD-50, sign and symptoms of common poisons.
11.	March, 11-16, 2019	Collection, preservation of samples; Conventional and recent extraction and isolation methods of poisons.
12.	March 25 - 30,2019	Pharmacology: theory and principles of absorption, distribution, biotransformation and excretion of drugs/poisons, and their forensic aspects.
13.	April 1-6, 2019	General studies and Analysis of vegetable poisons: Opium, Abrus, Dhatura, Marking nuts, Nux-vomica, Oleander and Aconite.
14.	April, 8-13, 2019	Alkaloids: classification and charecterisations. Snake venoms and insect poisons,

15.	April 15-20,2019	Irrespirable gases, food poisoning
16.	April 22-27,2019	Insecticides and Metallic Poisons: introduction, types,
17.	April 29-30,2019	Insecticides and Metallic Poisons: Analysis



**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) - VIII Semester (Even)**  
**Session- 2018-2019**

**Class: M.Sc. Forensic Science (P)**

**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.	Jan. 1-5,2019	Isolation of DNA, RNA, Purification, Restriction
2.	Jan. 7-12,2019	PCR – DNA amplification, autoradiography, and forensic applications
3.	Jan. 14-19, 2019	Cell and tissue culture techniques: pH and buffers, culture media preparations
4.	Jan. 21-25,2019	Sterilization techniques and forensic applications
5.	Jan. 28 -Feb 2,2019	Centrifugation Techniques - Centrifugation, cold and ultracentrifuges basic principle, instrumentation
6.	Feb 4-9,2019	G-value & relationship between RPM., applications of analytical centrifugation.
7.	Feb.11-16,2019	Electrophoresis: Introduction, principles, factors affecting electrophoresis,
8.	Feb. 18-23,2019	types of electrophoresis. High and low voltage electrophoresis, capillary electrophoresis.
9.	Feb 25- March 2, 2019	Immune electrophoresis, SDS-PAGE and iso- electric focusing; their application.
10.	March 4-9,2019	Enzyme kinetics, enzyme assay techniques such as visible UV spectrophotometric methods
11.	March, 11-16, 2019	Luminescence method, Radioisotope methods and Immuno-chemical methods.
12.	March 25 - 30,2019	Radio chemical techniques: radioisotope, nature of radioactivity
13.	April 1-6, 2019	Detection and measurements of radioactivity and forensic applications.
14.	April, 8-13, 2019	Immunochemical Techniques: Introduction, Antigen - antibody reactions -theory and principles
15.	April 15-20,2019	Production of antibodies. Immunoprecipitation and agglutination-based techniques such as immunodiffusion, cross over electrophoresis
16.	April 22-27,2019	Labeling of Antibodies and their detection methods
17.	April 29-30,2019	ELISA, RIA- their basic principle, techniques, and their forensic applications.

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) - VIII Semester (Even)**  
**Session- 2018-2019**

**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.	Jan. 1-5,2019	Introduction and classification of documents, genuine and forged document, and holographic document
2.	Jan. 7-12,2019	Preliminary examination of documents, ways of procurement, handling and marking of document, preservation and reproduction of documents. Basic tools for forensic document examination
3.	Jan. 14-19, 2019	Handwriting: principle, characteristics of handwriting, Identification and evaluation of handwriting
4.	Jan. 21-25,2019	Types of forgery, characteristic of genuine and forged signature and their examination. Identification of writer of anonymous letter.
5.	Jan. 28 -Feb 2,2019	Ink and paper examination
6.	Feb 4-9,2019	Determination of age of documents
7.	Feb.11-16,2019	Examination of various printing devices and forgeries of printed document
8.	Feb. 18-23,2019	Examination of altered documents
9.	Feb 25- March 2, 2019	Methods and examination of alteration, obliterations, erasures
10.	March 4-9,2019	Secret writing, Intended
11.	March, 11-16, 2019	Charred document
12.	March 25 - 30,2019	Study of advance techniques for examination of alterations such as Projectina, VSC and ESDA
13.	April 1-6, 2019	Photographic techniques to questioned document,
14.	April, 8-13, 2019	Discovery of facts by comparison with known material
15.	April 15-20,2019	Fry test and Daubert standards
16.	April 22-27,2019	Report writing, reasons for opinion
17.	April 29-30,2019	Presentation of expert evidence on documents case

**Weekly Lesson Plan**  
**M.Sc. (Forensic Science) – VIII Semester (Even)**  
**Session- 2018-19**

**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.	Jan. 1-5,2019	Forensic Medicine: Characteristics and cause of death; Aphyxial death- Introduction, characteristics and types of asphyxia death (Hanging, strangulation, drowning etc)
2.	Jan. 7-12,2019	Thermal death and their medico legal aspects. Estimation of time since death, post mortem examination
3.	Jan. 14-19, 2019	Injuries: classification, types and characteristics of mechanical injuries, antimortem and post mortem injury,
4.	Jan. 21-25,2019	Artificial injury, grievous injury, and their medicolegal aspects. Investigation of sexual offences, abortion and infanticides
5.	Jan. 28 -Feb 2,2019	Forensic Odontology: Definition, scope, structural variation and types of teeth.
6.	Feb 4-9,2019	Method, dental anomalies and their significance
7.	Feb.11-16,2019	Bite marks: methods of collection, preservation, recording, comparison and their significance.
8.	Feb. 18-23,2019	Forensic Anthropology: Definition, scope and problems, structure of bones, morphological study of human skeleton,
9.	Feb 25- March 2, 2019	Comparative study of human and animal skeleton. Age, sex and stature determination from skeleton remains
10.	March 4-9,2019	Craniometry: introduction, methods and their importance in personal identification

11.	March, 11-16, 2019	Osteometry introduction, methods and their importance in personal identification
12.	March 25 - 30,2019	Personal Identification Techniques: portrait parley/ Bertillon system,
13.	April 1-6, 2019	Superimposition techniques- photographic and video superimposition.
14.	April, 8-13, 2019	Facial reconstruction: introduction, theory and methods, importance of tissue depth to reconstruct various facial features
15.	April 15-20,2019	Genital and congenital anomalies
16.	April 22-27,2019	Determination of age and sex from teeth
17.	April 29-30,2019	Revision

  
**HEAD**  
**Chemistry Department**  
**Dyal Singh College, KARNAL**