SYLLABUS: Junior Scientific Assistant (Crime Scene- District Mobile Forensic Unit) in FSL

Introduction to Forensic Science: Basic, Principles & Significance, History & Development of Forensic Science, Organizational structure of Forensic Science, Frye case and Daubert standard. Locard's Principle of Exchange. Labs in Central & State, DFSS/ CFSL/ SFSL/ GEQD/ FPBs establishment & expansion, Hierarchical set up of central Forensic Science Laboratories, State Forensic Science Laboratories, Branches of Forensic science, Police structure, Organization set up of police structure.

Introduction to the crime scene, Types of crime scene. Evaluation and processing of crime scene. Securing the scene of crime. Documenting the crime scene, role of the first arriving officer at the crime scene. Searching techniques of Crime scene, crime scene ethics, types of evidences- Physical, Biological, Chemical & Digital Evidences. Role of physical evidences in Criminal Investigations & Trails. Collection, Preservation, Packaging, sealing, labeling and forwarding of physical evidences. Maintaining the chain of custody. Reconstruction of scene of crime. Criminal Justice System (CJS): Meaning, Purpose and Social Relevance.

Crime Scene Detection Devices: types of crime scene kits, their applicability and utility on crime scene, mobile forensic labs, Alternative Light Sources- UV, IR, X-Rays, lasers and its types, their nature and applications, Detective Dyes, Speed Detection Devices, Tools: Basic Kits (General Investigation Kit, NDPS Detection kit, GSR Dectection Kit, Fingerprint development kit, Sexual Assault Investigation kit), other various tools used in Mobile laboratory.

Forensic Photography & Videography: Introduction to forensic photography/videography, Importance of photography in criminal investigation, Legal significance of photographic evidence. Fundamentals of photography, Camera components and their functions, Exposure (Aperture, Shutter Speed, ISO), Depth of field and focus, Lighting principles in forensic photography. Overall photographs, Mid-range photographs, Close-up photographs, Photographs with and without scale. Documentation of indoor and outdoor crime scenes. Photographing evidence before collection. Photographing bloodstains, footprints, fingerprints, weapons etc. Low light

photography, Macro photography for trace evidence, Use of alternate light sources, Ultraviolet and infrared photography.

Forensic Biology: Organelles and their roles, the distinction between prokaryotic and eukaryotic cells, the difference between plant and animal cells, and human physiology. biological evidence types, identification, gathering, preservation, and importance. Hair-morphology, hair growth cycle, human and animal hair, microscopic analysis, race, sex, and body site determination. Genetics: DNA, RNA, and Mt DNA: structure, kinds, and replication; chromosomes and genes; heredity and variation.
Overview of Forensic Anthropology Human Skeletal: Animal and Human Comparative Anatomy, Individual Identification Methods: Estimating age: Using bones and teeth (Gustafson's approach). Morphological examination of the skull and pelvis is used to determine sex.

Plant Biology: Introduction, types, significance, location, collection and Forensic evaluation of botanical evidences such as pollen grains, leaves, seeds, wood and plant juices as evidence; Transfer of botanical evidence and forensic significance; Collection and preservation of botanical evidence; Diatoms: general morphology; Significance in drowning cases. Fibers: classification, characteristics, Forensic anyslsis of animal and plant originat fibers.

Forensic Chemistry: Basics of Forensic Chemistry, Definition and introduction; Types of cases and exhibits in forensic chemistry, types of Evidences, Collection and Preservation. Introduction to Toxicology: Introduction, scope and branches of toxicology; Exposure: routes of administration: enteral and parenteral; Types of toxicity; Lethal dose-50. Introduction & Scope, Classification of poisons, based on their origin, mode of action, chemical nature, poisons and poisoning in India.

Forensic Physics – Introduction to Basic Physics, Types of Physical Evidences, Collection and Preservation of Various Physical Evidences like Hair, Fibers, Glass, Toolmarks, tyremarks, etc. General Guidelines for Physical Evidence Collection Evidence collection from crime scene, victim & deceased in cases of - Homicide Investigation.

Forensic Microbiology: Definition, Types and identification of Bacteria, Viruses and Pathogens in Forensic Science, Microbial profiles as identification tools, use of microorganisms in bioterrorism, Anthrax, transmission of HIV as a criminal act, role of microbes in food poisoning, beneficial microbes; Forensic aspects of Microbiology; Biological warfare.

Related Laws: Relevant Provisions of New Criminal Laws-2023:
Bharatiya Nagarik Suraksha Sanhita (BNSS):- Section 2, 43(3), 51, 52, 94, 105, 173, 176(3), 187, 194, 196(2), 329, 349
Bharatiya Nyaya Sanhita (BNS):- Section- 61, 63,70(1), 75, 80, 85 152,103, 109, 196, 197, 318, 351, 356
Bharatiya Sakshya Adhiniyam (BSA):- Section 23, 24, 39, 40, 41, 44, 45, 57,61,62,63, 85, 86, 115
The criminal Procedure (Identification) Act, 2022.