

ADVANCED FIELD EVIDENCE TECHNICIAN COURSE
24 Hours

I. I.D. OF LATENT PRINTS/ LASER TECHNOLOGY

A. Fundamentals of Court Testimony

1. Communicate
2. Believable
3. Advocates
4. Acceptable
5. Understanding
6. Educate

B. Qualifications of the Expert Witness

1. Subject knowledge
2. Court knowledge
3. Experience
4. Public speaking skills
5. Preparation

C. Crime Scene Response

1. Team conference
2. Initial walk-through
3. Determine team assignments

D. Fluorescence Detection Techniques

1. History
2. Biology
3. Physics
4. Processing techniques for fluorescence
5. Crime scene applications

II. MEDICO-LEGAL INVESTIGATION

A. Introduction to forensic pathology

1. What constitutes a medical examination
2. Medical Examiner vs. Coroner system
3. Vital statistics
4. Forensic pathology and public health

B. Death certification

1. Cause of death
2. Manner of death
3. Mode of death
4. Mechanism of death

C. Autopsy and autopsy report

1. External examination
2. Internal examination
3. Documentation
4. Limitations of autopsy

D. Scene Investigation

1. Interacting with law enforcement agencies
- E. Time of Death
 1. Postmortem changes
 2. Gastric contents
- F. Natural Disease
 1. Cardiac tamponade
 2. Hypertrophic cardiomyopathy
 3. Ruptured abdominal aortic aneurysm
 4. Occlusive coronary atherosclerosis
 5. Myocarditis
 6. Hypertensive intracerebral hemorrhage
 7. Ruptured berry aneurism
 8. Acute peritonitis
 9. Ruptured esophageal varices
- G. Blunt Impact Injuries
 1. Abrasion, contusion, laceration, avulsion, fracture
 2. Motor vehicle trauma
- H. Firearm Injuries/ Gunshot Wounds
 1. Entrance wound
 2. Exit wound
 3. Range of fire
 4. Shotgun wounds
- I. Cutting (sharp- force) Injuries
 1. Stab wounds
 2. Incised wounds
- J. Asphyxial Deaths
 1. Smothering
 2. Hanging
 3. Strangulation
 4. Obstruction of airway/ larynx
 5. Chemical
 6. Auto-erotic
 7. Drowning
 8. Positional
 9. Mechanical
- K. Drug-related Fatalities/ Overdoses
 1. Acute intoxication
 2. Chronic substance abuse
- L. Fire Injury and Smoke Inhalation
 1. Thermal injuries
 2. Full autopsy and toxicology
 3. Carbon monoxide

III. DENTAL AND BITEMARK EVIDENCE

- A. Overview
- B. Importance of the scientific method
- C. Importance of dental evidence

1. Criminal investigations
2. Civil investigations
- D. Recognizing dental evidence
 1. Effects of charring
- E. Importance of porcelain fused to metal crowns, implants, etc.
- F. Investigator's duties and Authority to obtain antemortem records
- G. Applying dental information in the identification process
- H. Dental evidence in determining:
 1. Age
 2. Race
 3. Sex
 4. Socioeconomic status
- I. Other applications of dental evidence
 1. Richard Ramirez case
- J. Using Bitemark Evidence
 1. Importance
 2. Dangers
- K. Collecting and using bitemarks found in food, Styrofoam, etc.
- L. Collecting and using bitemarks found on skin
- M. Importance of correct swabbing for DNA salivary evidence
- N. Importance of accurate use of photography
 1. UV
 2. IR
 3. ALI
- O. Cases illustrating techniques

IV. SHOE PRINTS, TIRE MARKS, AND IMPRESSIONS

- A. What is impression evidence?
- B. Impression evidence at crime scenes
 1. Can link criminals to crime scenes
 2. Often neglected
 3. Frequently undervalued
- C. Searching techniques
 1. Use information and common sense to know where to look.
 2. Be methodical
 3. Look for impressions that are visible in available light
 4. Use oblique lighting or ALS
 5. Apply black powder, as with fingerprints
 6. Use electrostatic dust lifter for blind lifts
- D. Documentation
 1. Detailed notes describing location, orientation, size, pattern, and medium of impression, as well as techniques used
 2. Sketch area where found, noting specific measurements and showing direction
 3. Photograph overall scene, showing impression in relation to other items at scene. Use a tripod to photograph the collection of the impression.
 4. Enhancement techniques

- a) Physical—photography/ lighting, fingerprint powders, gel lifts/ EDLs
 - b) Chemical— Discussion of various specific chemicals that react with transfer materials. Methods generally conducted in the lab.
 - c) Digital—decreases darkroom time, increases image quality, accepted by the courts
- 5. Collection—Always try to collect item as well as impression. Use dental stone to cast 3D impressions, gel lifts and EDL for 2D impressions
- E. Specifics to tire tracks
 - 1. Measure track width and tread width
 - 2. Try to document full circumference
 - 3. Use tape measure for scale
 - 4. Cast a 3-foot impression of each tire in dental stone
- F. Collecting exemplars
 - 1. Collect the shoes
 - 2. Collect the entire car, not just the tires
 - 3. Handlifters
 - 4. Gel lifters
 - 5. Roller transport paper
 - 6. Inks/ acetate rolls
 - 7. Case study: Samantha Runnion murder case
- G. Discussion
- H. Hands-on collection techniques

V. BOMB INVESTIGATIONS

- A. Introduction
 - 1. Introduce self/discuss experience
 - 2. Summarize current bombing/explosive activity
- B. Explosive effects
 - 1. Explain importance in crime scene analysis
 - 2. Video—ATF explosives demonstration
 - 3. Explosive classifications
 - 4. Explosive effects
- C. Improvised Explosive Devices
 - 1. Basic components
 - 2. Fusing systems
 - 3. Methods of initiation
 - 4. Video
- D. Recognition, Collection, and Evaluation of Evidence
 - 1. Establish and secure scene perimeter
 - 2. Prepare scene sketch for plotting evidence
 - 3. Photograph scene
 - 4. Collection of evidence
 - 5. Reconstruction of device
 - 6. Video—ADC bombing, Santa Ana

VI. CLANDESTINE LABORATORIES

- A. Four Types of Labs
 - 1. Extraction
 - 2. Conversion
 - 3. Tableting
 - 4. Synthesis
- B. Terminology
 - 1. Precursor
 - 2. Reagent
 - 3. Solvent
 - 4. Catalysis
 - 5. pH scale
 - 6. Reflux
 - 7. Distillation
 - 8. Titration
 - 9. Exothermic
- C. California Health and Safety Codes—Clandestine Labs
- D. Methamphetamine yields
- E. Dangers to Law Enforcement