

**Raleigh/Wake City-County  
Bureau of Identification  
Crime Laboratory Division**

**LATENT PRINT UNIT EXAMINER TRAINING  
MANUAL**



Raleigh/Wake City-County Bureau of Identification  
Latent Print Unit Latent Print Examiner Training Manual

Issued: 9/29/2015  
Issued By: CCBI Director

Chapter: LPUETM1  
Version: 3

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**Introduction:**

Refer to Laboratory Administrative Procedure 22: Training Programs.

All training activity and results will be recorded by the Principal Instructor and the Trainee in the Training Checklist as well as attest that the required reading has been accomplished. The Principal Instructor will maintain a training file containing all training materials.

Modified training programs must be approved in writing by the Quality Manager in prior to the commencement of training.

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## PHASE 1

### SECTION 1

#### Module 1.1: Laboratory Orientation

##### Training Objectives:

An understanding of the administrative process and functions of the Raleigh/Wake City-County Bureau of Identification.

An understanding of the historical background and creation of the Raleigh/Wake City-County Bureau of Identification.

An understanding of the organizational structure of the CCBI to include chain-of-command, lines of communication, and applicable administrative forms (time sheets, leave forms, etc.)

An understanding of the services offered/performed by the various sections of the CCBI and the interactive sequencing protocol for cross-over examinations with latent prints.

An understanding of the geographical layout of the facility and the laboratory in which the facility is located.

An understanding of the structure of the CCBI latent print examiner training process and the expected goals of the program.

##### Method of Testing:

Oral examination by the Principal Instructor of knowledge of the CCBI system as related to its history, organization, administration, and the forensic services it provides.

##### Training Methods:

Oral discussion with the Principal Instructor covering historical establishment of the CCBI system, its present organizational structure, and administrative staff. The lecture will focus on the individual LP Trainee and his/her role and responsibilities in the agency and the LP training program.

- 1) The Trainee will undergo a rotation assignment with each section of the CCBI for familiarization with the services provided by each section and their relationship to latent print examinations.

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- 1) CCBI Crime Laboratory Administrative Procedures (Introduction)
- 2) CCBI Crime Laboratory Quality Manual (Introduction)
- 3) CCBI Latent Print Unit Technical Procedures (Introduction)
- 4) 1937 Law establishing CCBI
- 5) CCBI Latent Print Unit Training Manual
- 6) CCBI Standard Operating Procedures (Introduction)

Estimated training time: 10 (ten) days

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## **Module 1.2: Operational Procedures**

### **Training Objectives:**

An understanding of applications of the CCBI Policy and Procedure in the operation of a forensic science laboratory.

### **Method of Testing:**

Oral examination on the training objectives by the Principal Instructor.

### **Training Methods:**

- 1) Oral discussion with the Principal Instructor on the use of personal computers in the CCBI system as related to operation, e-mail, Internet usage, and programs specific to the discipline of fingerprint science.
- 2) Oral discussion with the Principal Instructor on the use and dissemination of the CCBI documents related to case information.
- 3) Research and write a paper addressing some aspect of fingerprint science using at least two (2) Internet reference sites, utilizing Microsoft Word to write the paper, and forwarding the paper as an attachment to an e-mail to the Trainer's e-mail address.
- 4) Research and write a paper addressing the CCBI procedure in some of the various methods of the dissemination of case information to the Wake County law enforcement community, utilizing Microsoft Word to write the paper, and forwarding the paper as an attachment to an e-mail to the Trainer's e-mail address.

### **Required Reading:**

- 1) CCBI Crime Laboratory Administrative Procedures (Cont.)
- 2) CCBI Crime Laboratory Quality Manual (Cont.)
- 3) CCBI Latent Print Unit Technical Procedures (Cont.)
- 4) CCBI Standard Operating Procedures (Cont.)

Estimated training time: 10 (ten) days continued from previous module.

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### **Module 1.3: Crime Laboratory Safety Procedures**

**Training Objectives:**

An understanding of the safety procedures and practices in the CCBI Crime Laboratory.

**Method of Testing:**

Oral examination on the required reading by the Crime Laboratory Health and Safety Officer.

**Training Methods:**

- 1) Oral discussion with the Crime Laboratory Health and Safety Officer about laboratory safety practices and procedures.
- 2) Research and write a paper relating the importance of laboratory safety and how it is practiced at CCBI.

**Required Reading:**

- 1) CCBI Crime Laboratory Health and Safety Manual
- 2) Wake County Safety, Security and Loss Prevention Manual
- 3) Material Safety Data Sheets for materials used in the Latent Print Unit

Estimated training time: Five (5) days



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## **Module 1.4: Evidence Management**

### **Training Objectives:**

An understanding of physical evidence and its: origin; collection; containers; handling; integrity; labeling; packaging; preservation; proof of custody; safety; sealing; and routing/storage.

An understanding and demonstration of appropriate evidence data entry to include: item description(s); item # generation, lab services requested.

An understanding of CCBI evidence receiving and handling practices.

An understanding of inputting information into RMS database system, and various evidence tracking mechanisms.

Knowledge of required CCBI documentation (electronic/paper) requirements necessary to reflect case records (addenda, corrections, phone logs, etc.).

### **Method of Testing:**

Demonstrate under the direct supervision of the Principal Instructor, the proper evidence receipt, documentation, inventory, labeling, packaging, marking and storage for a total of at least thirty (30) cases.

### **Training Methods:**

- 1) Oral discussion by the Principal Instructor an overview of latent print evidence inclusive of: case type; packaging; case protocol depending on case type and case history; general receiving procedure; general evidence receiving, labeling, storing and packaging after receipt; receipt of additional evidence in an existing case; evidence release; and generation of Latent Print Unit internal case paperwork.
- 2) Demonstration with the Principal Instructor of receipt of new cases from the main evidence vault, transfer to the Latent Print Unit and assignment to the Latent Print Unit.
- 3) For the course of at least five (5) working days, receive new cases from the Main Evidence Vault and sign them into the Latent Print Unit utilizing proper protocol and procedure for evidence receiving and handling. Assign these cases into the Latent Print Unit accordingly.
- 4) Research and write a paper relating the consequences of improper evidence handling as it relates to court. Reference examples of court cases in which improper evidence handling had a negative adverse effect in the courts.

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Required Reading:

- 1) Saferstein, R. (1998). Criminalistics: An Introduction to Forensic Science, 8th (Ed.), Chapters 1 & 3.

Estimated training time: Five (5) days

## **SECTION 2**

### **Module 2.1: The History of Friction Ridge Skin Identification and Forensic Science**

#### Training Objectives:

An understanding of historical events and information applicable to contemporary friction ridge skin analyses inclusive of: the earliest recorded awareness of fingerprints and their usage; early anatomical observations and empirical testing; primitive and current identification methodologies; the basic foundations of the science of fingerprints; biographies of the pioneers of fingerprint science and their contributions; and the chronology of the introduction and use of fingerprints in the United States.

A basic interactive knowledge of the history of forensic science.

#### Method of Testing:

Oral examination by the Principal Instructor of historical events, theories, and applications in relation to contemporary forensic science and the friction ridge skin analysis.

#### Training Methods:

- 1) Oral discussion by the Principal Instructor relating to an overview of the early methods of identification and those presently in use, other than friction ridge skin.
- 2) Oral discussion by the Principal Instructor relating to an overview of historical aspects of the science of fingerprints.
- 3) Research and write a paper outlining a brief history of forensic science.
- 4) Research and write a paper on three (3) pioneers of fingerprint science and his/her contributions toward friction ridge skin identification.
- 5) Research and write a paper on a means of personal identification other than print identification.
- 6) Create a mock true/false/multiple choice test (with answers) of at least 100 questions utilizing the information from the required reading listed below.

#### Required Reading:

- 1) Saferstein, R. (1998). Criminalistics: An Introduction to Forensic Science, 8th (Ed.), Pages 1-9 & 406-408.

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- 2) DeForest, P., Gaensslen, R., Lee, H. (1983). Forensic Science: An Introduction to Criminalistics, Chapter 1 and Pages 330-331.
- 3) Cowger, J. (1983), Friction Ridge Skin: Comparison and Identification of Fingerprints, Chapter 1.
- 4) Lee, H. & Gaensslen, R. (1994). Advances in Fingerprint Technology, Chapter 1.
- 5) Ashbaugh, D. (1999). Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgeology, Chapter 2.

Estimated training time: Ten (10) days

## **Module 2.2: The Anatomy of Friction Ridge Skin**

### **Training Objectives:**

An understanding of basic anatomy and terminology of the hands and feet as applicable to friction ridge skin identification.

An understanding of the biology and physiology of friction ridge skin.

An understanding of the contributions of human secretion glands and external contaminants to latent prints and their subsequent development.

An understanding of the general chemical composition of human sweat.

An understanding of the development and permanent nature of scars on friction ridge skin, and the temporary nature of superficial skin injuries.

An understanding of various diseases that affect the development of friction ridge skin.

### **Method of Testing:**

Practical interpretation of anatomical terms related to the hands and feet, the morphological development of friction ridge skin, the role of general secretion glands and their organic or inorganic contribution to latent print residue, and natural and non-natural issues affecting friction ridge skin.

### **Training Methods:**

- 1) Oral discussion by the Principal Instructor on the formation of friction ridge skin with emphasis placed upon morphology, basic anatomical features, and terminology related to the hands and feet.
- 2) Oral discussion by the Principal Instructor of the principle function of eccrine, apocrine and sebaceous glands and their organic and inorganic components in latent print residue.
- 3) Oral discussion by the Principal Instructor on the issues involved with scar formation, friction ridge skin mutilation, and diseases affecting friction ridge skin.
- 4) The Trainee will prepare a series of hand drawn illustrations depicting the friction ridge skin surfaces of the fingers, palms and feet labeling their respective anatomical regions/areas and a cut-out (dissected) view of friction ridge skin labeling and illustrating the layers of the skin, papillae pegs, sweat gland, and pore.

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- 5) Research and write a paper on true examples of instances in which individuals have attempted to mutilate their friction ridge skin to prevent identification. Reference a minimum of three (3) specific cases.
- 6) Prepare a PowerPoint presentation, on no less than 10 slides, illustrating various examples of diseases that can have an effect on friction ridge skin.

Required Reading:

- 1) Olsen, R. D. (1978). Scott's Fingerprint Mechanics, Pages 115-120.
- 2) Ashbaugh, D. (1999). Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgology, Chapters 3,4 & 5.
- 3) DeForest, P., Gaensslen, R., Lee, H. (1983). Forensic Science: An Introduction to Criminalistics, Chapter 12.

Estimated training time: Ten (10) days

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### **Module 2.3: Friction Ridge Pattern Recognition and Interpretation**

#### Training Objectives:

An understanding fingerprint and palm print pattern recognition and interpretation.

#### Method of Testing:

Operational demonstration of friction ridge pattern recognition and its appropriate descriptive terminology.

#### Training Methods:

- 1) Oral discussion by the Principal Instructor on the various methods of recognizing fingerprint and palm print friction ridge.
- 2) Complete pattern recognition exercises on a minimum of one hundred (100) copies 10-print cards, indicating each fingerprint pattern and various palm print patterns utilizing the appropriate descriptive terminology.
- 3) Create a PowerPoint presentation, on no less than 10 slides, illustrating various examples (may have more than one example per slide) of unusual friction ridge pattern formations, questionable pattern types, or odd shapes not seen in “normal” friction ridge patterns. Each example should have a brief description of where the pattern comes from (finger, palm, joint, foot) and its appropriate descriptive pattern type, if applicable.

#### Required Reading:

- 1) Federal Bureau of Investigation. (1984). The Science of Fingerprints, Chapters 2-8.
- 2) DeForest, P., Gaensslen, R., Lee, H. (1983). Forensic Science: An Introduction to Criminalistics, Chapter 12.
- 3) Cowger, J. (1983), Friction Ridge Skin: Comparison and Identification of Fingerprints, Chapter 3.

Estimated training time: Five (5) days

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## **Module 2.4: Known Standards – Methods for Recording Friction Ridge Skin**

### **Training Objectives:**

An understanding of the methodologies of recording known friction ridge standards and the associated benefits of obtaining elimination prints.

An understanding of the biographical and evidentiary value of completed known standards.

### **Method of Testing:**

Practical exhibition of the recording of finger, foot and palm prints (major case style prints).

Comprehensive application of the use of different various print recording methods.

### **Training Methods:**

- 1) Oral discussion by the Principal Instructor on proper techniques and equipment used in obtaining legible major case style fingerprints, palm prints, and footprints.
- 2) Demonstration of the various methods for friction ridge skin recording: fingerprint powder and contact paper, ink, livescan, and Mikrosil.
- 3) Record at least five (5) complete sets of inked finger, tip finger, joint finger, and palm prints utilizing ink.
- 4) Record at least two (2) sets of finger and palm prints utilizing fingerprint powder.
- 5) Record at least one (1) set of inked foot prints, and one (1) set of foot prints collected by fingerprint powder and contact paper.
- 6) Record at least three (3) fingerprints utilizing Mikrosil.
- 7) Utilize the LiveScan to assist with public fingerprinting for at least 3 individuals.
- 8) Locate in archives three (3) examples each of poorly recorded finger/palm print standards and incomplete finger/palm print standards, and provide a brief description of what is wrong with each example and an appropriate correction.

### **Required Reading:**

- 1) Cowger, J. F. (1992). Friction Ridge Skin: Comparison and Identification of Fingerprints, Pages 8-28.
- 2) Olsen, R. D. (1978). Scott's Fingerprint Mechanics, Pages 56-84 & 90-101.



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3) Federal Bureau of Investigation. (1984). The Science of Fingerprints, Chapters 9 & 10.

Estimated training time: Ten (10) days

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## **Module 2.5: Post-Mortem Print Collection Methods**

### **Training Objectives:**

An understanding of methods of recording known friction ridge standards from the deceased while practicing personal protection from exposure of biological hazardous matter.

An understanding of friction ridge skin conditions from early to advanced decomposition as well as the affective associative environmental factors.

### **Method of Testing:**

Comprehensive application of recording post-mortem prints using conventional inking and powder application methods while employing proper laboratory safety procedures to prevent exposure of biological hazards.

Conceptual understanding of obtaining known prints from hands and feet of deceased in varying stages of decomposition.

### **Training Methods:**

- 1) Oral discussion by the Principal Instructor on proper collection techniques, safety precautions, and equipment used in obtaining legible post-mortem fingerprints, palm prints and footprints.
- 2) Record at least two (2) sets of finger and palm prints of individuals either deceased or simulating death, using various recording methods discussed in Module 2.4.
- 3) Research and write a paper on the various stages of the decomposition of skin after death.
- 4) Oral presentation - practice of personal and laboratory safety techniques inclusive of the use of personal protective equipment.

### **Required Reading(s):**

- 1) Cowger, J. F. (1992). Friction Ridge Skin: Comparison and Identification of Fingerprints, Pages 28-33.
- 2) Olsen, R. D. (1978). Scott's Fingerprint Mechanics, Pages 84-89.
- 3) Federal Bureau of Investigation. (1984). The Science of Fingerprints, Chapter 11.

Estimated training time: Five (5) days

## **SECTION 3**

### **Module 3.1: Introduction to Latent Prints**

#### **Training Objectives:**

An understanding of the general chemical composition of human sweat as a means of understanding the composition of latent print residue and the infinite variables precluding “age” determination of latent prints in almost all instances.

An understanding of the potential for loss, contamination, and destruction of other types of forensic evidence when more than one section/discipline process the same item of evidence.

An understanding of the professional duties, ethics, and moral obligations of Latent Print Examiners.

#### **Method of Testing:**

Practical interpretation of the processes of leaving latent print deposits to include parameters of analytical interpretations (age, gender, race).

Conceptual understanding of the potential for the destruction of an evidence item by multiple processing techniques.

Conceptual understanding of duties, ethics, and moral obligations of Latent Print Examiners.

#### **Training Methods:**

- 1) Oral discussion by the Principal Instructor which relates theoretical principles involved in the leaving of latent print residue along with the parameters of latent print analyses.
- 2) Research and write a paper using data collected from at least six (6) different references relating to factors contributing to the leaving of latent print residue.
- 3) Research and write a paper on the potential destruction of evidence by multiple processing techniques.
- 4) Prepare a PowerPoint presentation, on no less than 10 slides, describing the duties, ethics, and moral obligations of Latent Print Examiners.

#### **Required Reading:**

- 1) Olsen, R. D. (1978). Scott’s Fingerprint Mechanics, Pages 111-125.

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- 2) Cowger, J. F. (1992). Friction Ridge Skin: Comparison and Identification of Fingerprints, Pages 72-76.
- 3) Gaensslen, R., Lee, H. (1994). Advances in Fingerprint Technology, Chapters 3, 4, and 5.
- 4) Federal Bureau of Investigation. (1984). The Science of Fingerprints, Chapter 13.

Estimated training time: Ten (10) days

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### **Module 3.2: Introduction to Latent Print Processing**

#### **Training Objectives:**

An understanding of the processes of latent print development techniques applicable to varying surfaces and factors that may be associated with evidence.

#### **Method of Testing:**

Conceptual understanding of the constituents of latent print residue, host surface structure, environmental factors, and associated features that dictate the development technique to be employed and/or sequenced with others.

#### **Training Methods:**

- 1) Oral discussion by the Principal Instructor on the influence of contributing factors (surface, temperature, humidity, latent print residue composition and other variables) in relation to development and recovery of latent prints.
- 2) Research and write a paper using data collected from at least (6) different references relating to processing sequencing in relation to latent print residue present on items which have been exposed to adverse conditions.

#### **Required Reading:**

- 1) Gaensslen, R., Lee, H. (1994). Advances in Fingerprint Technology, Chapters 3,4, and 5.

Estimated training time: Five (5) days

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### **Module 3.3: Basic Powder Development Methods**

#### **Training Objectives:**

An understanding of the composition of powder used to develop latent prints of varying surfaces and the safety practices necessary in that use.

An understanding of the development and preservation process of latent prints utilizing different methods of powder application to varying types of physical evidence.

#### **Method of Testing:**

Practical exhibition of latent print powder development techniques inclusive of the use of: fiber glass brush; magnetic wand; feather duster; long-hair brushes; clear lifting tape; frosted lifting tape; rubber lifters; hinge lifters; and latent lift cards.

#### **Training Methods:**

- 1) Oral discussion by the Principal Instructor on the different types of powders, brushes and applicators, lifting mediums, and application techniques available for latent print processing of physical items. Lecture will include the proper marking (documentation) of necessary information on the lift mounting medium. Lecture will include discussion on the pharmacology of powders and appropriate safety practices used during their application in the laboratory.
- 2) Oral discussion by the Principal Instructor on proper marking and documentation required on each lift card.
- 3) Develop and lift fifty (50) latent prints each from a smooth, non-porous, curved surface (mock evidence) using various powders and collection materials as referenced above. Each lift should be placed on the appropriate-colored latent lift card and correctly labeled.

#### **Required Readings:**

- 1) (1978). Scott's Fingerprint Mechanics, Pages 114-139, 161-171, 209-235 & 369-395.
- 2) Cowger, J. (1983), Friction Ridge Skin: Comparison and Identification of Fingerprints, Pages 76-93.
- 3) Lee, H. & Gaensslen, R. (1994). Advances in Fingerprint Technology, Pages 60-65.
- 4) Federal Bureau of Investigation. (1984). The Science of Fingerprints, Chapter 14.

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- 5) Saferstein, R. (1998). Criminalistics: An Introduction to Forensic Science, 8th (Ed.), Pages 417-429.

Estimated training time: Five (5) days

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### **Module 3.4: Chemical Development of Latent Prints**

#### **Training Objectives:**

An understanding of the composition of various chemicals used to develop latent prints on varying surfaces, its preparation, storage, waste procedures and necessary safety practices.

An understanding of the application techniques of various chemicals used to develop latent prints along with an understanding of latent print residue components reacting to specific chemicals.

#### **Method of Testing:**

Practical exhibition of the pharmacology of latent print developing chemicals inclusive of laboratory, environment, and safety practices.

Practical exhibition of chemical development techniques inclusive of chemical interactions upon latent print residue, various surfaces, and sequencing development procedures.

#### **Training Methods:**

- 1) Oral discussion by the Principal Instructor on chemical processing of evidence for latent prints, including sequencing protocols, via variety of application techniques as applicable to the substrate, latent print residue, contaminants present, and/or cross-over examinations to be performed.
- 2) Research and write a paper using data collected from at least six (6) different references relating to the history and current use of iodine, ninhydrin, physical developer, cyanoacrylate fuming, leucocrystal violet, amido black, and small particle reagent.
- 3) Create a PowerPoint presentation flowchart showing three (3) types of evidence processing sequences for latent prints. The evidence items are: a demand note from a kidnapping, a bloody knife from a stabbing, and sandwich baggie from a drug bust.

#### **Required Reading:**

- 1) Federal Bureau of Investigation. (2000). Processing Guide for Developing Latent Prints.
- 2) Lee, H. & Gaensslen, R. (1994). Advances in Fingerprint Technology, Pages 65-127.
- 3) DeForest, P., Gaensslen, R., Lee, H. (1983). Forensic Science: An Introduction to Criminalistics, Pages 341-349.
- 4) Saferstein, R. (1998). Criminalistics: An Introduction to Forensic Science, 8th (Ed.), Pages 417-425.



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- 5) Cowger, J. (1983), Friction Ridge Skin: Comparison and Identification of Fingerprints, Pages 93-107.
- 6) Federal Bureau of Investigation. (1984). The Science of Fingerprints, Chapter 15.
- 7) Olsen, R. D. (1978). Scott's Fingerprint Mechanics, Chapters 6 & 7.

Estimated training time: Five (5) days

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### **Module 3.5: Electronic Equipment: Chemically Developed Latent Prints**

#### **Training Objectives:**

An understanding of the application techniques of various electronic devices used to view chemically-developed latent prints along with a working knowledge of safety and equipment maintenance.

An understanding of the operation and applications of digital equipment used for documentation, digital enhancement, and preservation/storage of images of chemically developed latent prints.

#### **Method of Testing:**

Practical exhibition of knowledge of electronic equipment used to view chemically-developed/enhanced latent prints as well as exhibit equipment maintenance and safety practices.

Practical exhibition of knowledge of digital equipment and software used for the electronic capture, enhancement, storage, and documentation of chemically developed latent prints.

#### **Training Methods:**

- 1) Oral discussion by the Principal Instructor on use of alternate light sources in conjunction with the examination of cyanoacrylate fumed, dye stained, latent prints.
- 2) Oral discussion by the Principal Instructor on operation and applications of digital cameras and imaging software systems used by the Forensic Photographer for the Latent Print Section.
- 3) View at least five (5) items processed with cyanoacrylate fumes under various wavelengths of an alternate light source.
- 4) Research and write a paper on the how an alternate light source functions, and how it allows for the detection of evidence not normally seen with the naked eye.

#### **Required Reading:**

- 1) Lee, H. & Gaensslen, R. (1994). Advances in Fingerprint Technology, Chapters 5 & 7.
- 2) Saferstein, R. (1998). Criminalistics: An Introduction to Forensic Science, 8th (Ed.), Pages 425-429.

Estimated training time: Five (5) days

## **SECTION 4**

### **Module 4.1: Recognition and Orientation of Friction Ridge Skin**

#### **Training Objectives:**

An understanding of the structure of friction ridge skin on the fingers, palms, and soles of feet inclusive of delta formations, flexion creases, ridge flow, patterns, and anatomical regions.

An understanding of the proper orientation of fragmentary latent prints.

#### **Method of Testing:**

Practical demonstration of fingerprint pattern interpretation.

Practical interpretation of ridge flow, ridge formations, patterns, and creases to determine value and orientation of fragmentary latent palm prints.

#### **Training Methods:**

- 1) Oral discussion by the Principal Instructor on analysis of fragmentary latent finger, palm and footprints to determine value for comparison and interpreting ridge flow and other “clues” within the latent print to determine originating area of the finger, palm, or foot and the proper orientation.
- 2) Interpretation of fingerprint patterns present on twenty (20) fingerprint standards.
- 3) Using the appropriate terms, highlight and label twenty (20) inked palm prints and six (6) inked footprints inclusive of flexion creases and anatomical regions.
- 4) Analyze two hundred (200) latent impressions collected from a variety of surfaces. Determine if the impression is:
  - a. From friction ridge skin?
  - b. Friction ridge skin of value?
  - c. Of value to compare?
  - d. Of value to eliminate?
  - e. Of value to identify?
  - f. Specify the anatomical origin of the latent print.

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NOTE: This assignment will contain a variety of latent impressions inclusive of fingerprints, joint fingerprints, tip fingerprints, palm prints, footprints, and non-friction ridge skin.

- 5) Create a PowerPoint presentation, on no less than 10 slides, displaying various other types of impressions that may be confused with friction ridge skin impressions.

Required Reading:

- 1) Olsen, R. D. (1978). Scott's Fingerprint Mechanics, Pages 24-46.
- 2) Cowger, J. F. (1992). Friction Ridge Skin: Comparison and Identification of Fingerprints, Pages 58-70 & 152-172.
- 3) Ashbaugh, D. (1999). Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgology, Chapter 8.

Estimated training time: Fifteen (15) days

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## Module 4.2: Latent Print Comparison

### Training Objectives:

An understanding of the contributing factors related to the deposit of latent prints, the ability to recognize and interpret these factors in comparing latent prints, and to render identification decisions based upon final evaluation.

An understanding of the identification value of cumulative characteristics in simultaneous latent impressions.

### Method of Testing:

Practical exhibition of knowledge and ability to evaluate latent impressions to determine identification value.

Practical exhibition of knowledge and ability to conduct latent print comparisons and render proper identification decisions.

### Training Methods:

- 1) Oral discussion by the Principal Instructor on friction ridge identification including historical background, fundamental principles, various methods of comparison, and identification policies in and outside the United States.
- 2) Oral discussion by the Principal Instructor on recognizing and utilizing Level I, II, and III details in the process of evaluation for value, comparison, and identification of latent prints. Emphasis will be placed on the accepted methodology of identification using the ACE-V formula (Analysis, Comparison, Evaluation, and Verification).
- 3) Oral discussion by the Principal Instructor on the various factors that influence latent print deposits and subsequent development appearance. These factors include tonal reversal, position reversal, slippage, overlays, double-taps, pressure distortion, matrix composition, development mediums, and substrate distortion.
- 4) Oral discussion by the Principal Instructor on issues influencing simultaneous impressions and the application of simultaneity to latent impression evidence in case work. Practical exercises, as prepared by the Principal Instructor, on various latent impressions for determination of simultaneity. Listen to podcast <http://www.stitcher.com/podcast/double-loop-podcast/e/episode-71-simultaneous-impressions-36545842> regarding simultaneous latent print impressions. Watch video [http://www.suffolk.edu/sjc/archive/2005/SJC\\_09478.html](http://www.suffolk.edu/sjc/archive/2005/SJC_09478.html) regarding simultaneous impressions in a criminal court case.

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- 5) Oral discussion by the Principal Instructor on proper note taking and documentation to be recorded during case examination.
- 6) The student will conduct comparisons of latent impressions in 30 mock cases, to be assigned by the Trainer. The Trainee will be required to create the appropriate notes for each case. The cases must have a variety of latent impressions in different formats (to include photos, scans, lift cards, etc.), as well as different case types (persons crimes and property crimes).

Required Reading:

- 1) Ashbaugh, D. (1999). Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgology, Chapters 4,6, & 7.
- 2) Black, John (2006). "Pilot Study: The Application of ACE-V to Simultaneous (Cluster) Impressions", *Journal of Forensic Identification*, 56 (6), 2006\933
- 3) Cowger, J. F. (1992). Friction Ridge Skin: Comparison and Identification of Fingerprints, Pages 172-206.
- 4) Lee, H. & Gaensslen, R. (1994). Advances in Fingerprint Technology, Chapter 2.
- 5) DeForest, P., Gaensslen, R., Lee, H. (1983). Forensic Science: An Introduction to Criminalistics, Pages 349-354.
- 6) SWGFAST, Document #20, Standard for Simultaneous Impression Evidence (Latent), Ver 2.0.

Estimated training time: Sixty (62) days

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### **Module 4.3: Automated Fingerprint Identification Systems (SPEX, AFIS, IAFIS)**

#### **Training Objectives:**

An understanding of the operation relating to automated fingerprint identification systems utilized in the Latent Print Unit.

#### **Method of Testing:**

Operational exhibition of AFIS database systems as related to latent print inquiries/searches.

#### **Training Methods:**

- 1) Oral discussion by the Principal Instructor on the use of each of the AFIS systems utilized in the Latent Print Unit.
- 2) Encode fifteen (15) latent fingerprint prints and fifteen (15) latent palm prints (where applicable), and search them in each database system. Conduct on-screen comparisons of all result candidates of these inquiries.

#### **Required Reading(s):**

- 1) Lee, H. C. & Gaensslen, R. E. (Eds.) (1994). Advances in Fingerprint Technology, Chapters 2-5.
- 2) Saferstein, R. (1998). Criminalistics: An Introduction to Forensic Science, 8th (Ed.), Pages 415-417.

Estimated training time: Five (5) days

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### **Module 4.4: Preparation for Court and Legal Issues**

#### **Training Objectives:**

An understanding of the legal rulings governing latent print expert testimony.

An understanding of court exhibit preparations to include print selection, making enlargements, ridge characteristic selection for charting, numbering, and chart assembly.

#### **Method of Testing:**

Practical exhibition of preparing enlargement for charting and courtroom presentation.

Practical exhibition of knowledge related to the legal requirements and considerations afforded to the expert witness in friction ridge skin identification.

#### **Training Methods:**

- 1) Oral discussion by the Principal Instructor on making enlargements for courtroom presentation.
- 2) Oral discussion by the Principal Instructor on the evolution of expert testimony and its acceptance in American courts.
- 3) Prepare a court exhibit demonstrating matching characteristics in the latent and inked print.
- 4) Utilizing a law library, the Internet, forensic and law journals, and other material assigned by the Trainer; the student will research and write a paper on the law related to the evolution of latent print expert testimony being accepted in the American courts.
- 5) Create a set of at least twelve (12) qualifying questions and answers for expert latent print testimony.
- 6) Oral presentation: participate in a moot court exercise as an expert witness, with an audience of Latent Print Examiners and Supervisors.

#### **Required Reading:**

- 1) Federal Bureau of Investigation. (1984). The Science of Fingerprints, Chapter 17.
- 2) Fry v. United States, 293 F2d. 1013 (D.C. Cir 1923)
- 3) Daubert v. Merrell Dow Pharmaceuticals, 113 S.Ct. 2786 (1993).



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- 4) United States v. Byron Mitchell, July 7-13, 1999, Philadelphia, PA.
- 5) United States v. Llera Plaza, January 7, 2002, US District Court, Eastern District of PA.
- 6) Cowger, J. F. (1992). Friction Ridge Skin: Comparison and Identification of Fingerprints, Chapter 9.
- 7) Lee, H. & Gaensslen, R. (1994). Advances in Fingerprint Technology, Chapter 10.

Estimated training time: Ten (10) days

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### **Module 4.4 4.5: Ethics in Forensic Science**

#### Training Objectives:

An understanding of the various ethical issues affecting forensic science.

#### Method of Testing:

Practical exhibition of knowledge related to ethical issues and considerations in the various aspects of forensics, including issues of personal conduct, the work environment, and the court room.

Practical understanding of the relationship between forensic scientists and law enforcement.

Practical understanding of the pressures that can lead to ethical dilemmas.

Practical understanding of the ethical standards, or lack of standards, that are in place for forensic scientists.

#### Training Methods:

- 1) Oral discussion by the Principal Instructor on ethics topics as related to issues in forensic science.
- 2) Research and write a paper on a minimum of five (5) true instances in which ethical issues of forensic practitioners have had negative effects on case work, court, and /or innocent persons.
- 3) Complete an ethics training course approved by the Forensic Quality Manager.

#### Required Reading:

- 1) International Association for Identification, Code of Ethics for Latent Print Examiners
- 2) Read the ASCLD/LAB guiding principles of professional responsibility for crime laboratories and forensic scientists.

Estimated training time: Five (5) days

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## SECTION 5

### Module 5.1: Final Written Exam

Training Objectives:

A comprehensive understanding of training topics as outlined in this training manual.

Method of Testing:

Successful completion (minimum 85% score) of a comprehensive written examination covering the training topics contained in this training manual. The written examination shall be completed by the Trainee independently and without any reference material.

Training Methods:

- 1) Independent review of training material by Trainee.
- 2) Trainee may initiate discussion of any questions with the Principal Instructor prior to beginning the final written examination.

Required Reading: None

Estimated training time: Two (2) days

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## **Module 5.2: Moot Court**

### Training Objectives:

Successfully complete testimony based on a mock case in a mock court setting.

Receive authorization from the Director to participate in supervised casework.

### Method of Testing:

Employee Testimony Evaluation forms will be used to evaluate the testimony. The forms must be completed by: Principal Instructor

Unit Technical Leader

Forensic Quality Manager and/or Crime Laboratory Deputy Director

### Training Methods:

- 1) Discussion with the Principal Instructor on courtroom testimony.
- 2) Observe the courtroom testimony of the Principal Instructor or another Latent Print Unit employee.
- 3) Testify in a mock case in a mock court setting evaluated by the Principal Instructor, Unit Technical Leader, Forensic Quality Manager and/or Crime Laboratory Deputy Director.

Required reading: None

Estimated Training Time: 4 (four) days

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## PHASE 2

### SECTION 6

#### Module 6.1: Supervised Case Work

Training Objectives: An understanding of latent print reporting procedures as applied to official reports, required documentation of case files, and evidence handling and chain-of-custody procedures, in accordance with all CCBI and Latent Print Unit Policies and Procedures.

Receive a Certificate of Competency from the Director.

An ability to conduct independent latent print examinations at a level at which supervised casework is no longer necessary.

Method of Testing:

Practical exhibition of the use of all systems utilized in the Latent Print Unit necessary for the completion of case assignments in accordance with all CCBI and Latent Print Unit Policies and Procedures.

Practical exhibition of written communications required for case files and official notifications and reports in accordance with all CCBI and Latent Print Unit Policies and Procedures.

Completion of the assigned one hundred (100) cases and recommendation by the Principal Instructor for release from Phase II training.

Training Methods:

- 1) Discussion with and demonstration by the Principal Instructor on structure and required materials, notes, and documents to be contained in the latent print case files and written reports.
- 2) Under the direct supervision of the Principal Instructor, perform Latent Print Examiner assigned casework activities for a minimum of one hundred (100) cases.

Required Reading:

None

Estimated training time: Three (3) months

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## **Module 6.2: Competency Test**

### Training Objectives:

Demonstration of ability to accurately perform assigned casework activities of a Latent Print Examiner.

### Method of Testing:

Successful completion of a competency test in latent print database searching and latent print analysis, comparison, and evaluation. The competency test must be completed by the Trainee independently. Any questions shall be directed to the Principal Instructor.

Successful completion of a written test report to demonstrate ability to properly convey results and/or conclusions and the significance of those results/conclusions.

Successful completion of an oral examination to assess the individual's knowledge of the discipline. The oral examination will be conducted by, at a minimum, the Principal Instructor, the Unit Technical Leader and the Forensic Quality Manager and/or the Deputy Director.

### Training Methods:

- 1) Independent review of training material by Trainee.
- 2) Trainee may initiate discussion of any questions with the Principal Instructor prior to beginning the competency test.

### Required reading:

None

Estimated training time: 3 (three) days

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## PHASE 3

### SECTION 7

#### Module 7.1: 100 % Administrative and 100 % Technical Review

Training Objectives:

Be able to conduct independent latent print database searching and latent print analysis, comparison, and evaluation in accordance with all CCBI and Latent Print Unit Policies and Procedures.

Method of Testing:

Practical exhibition of the use of all applicable AFIS database systems utilized in the Latent Print Unit, of the analysis, comparison, and evaluation of print impression evidence in accordance with all CCBI and Latent Print Unit Policies and Procedures.

Practical exhibition of written communications required for case files and official notifications and reports in accordance with all CCBI and Latent Print Unit Policies and Procedures.

Completion of the assigned one hundred (100) cases without any significant discrepancies that could affect the reliability of the Latent Print Examiner's work.

Recommendation by the Principal Instructor for release from Phase III training.

Training Methods:

- 1) Perform Latent Print Examiner assigned casework activities for a minimum of one hundred (100) cases.

Required Reading: None

Estimated Training Time: Three (3) months

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### LP Training Checklist

#### LP Training Checklist

This training checklist is to assure that the trainer is training and the trainee is becoming competent after assessments of each module. The appearance of the initials and date of the trainer along with those of the trainee indicates that both trainee and trainer agree that competency in the curricula of the specified module has been successfully exhibited.

Trainee: \_\_\_\_\_ Trainer: \_\_\_\_\_

Module/Training Activity	Trainer	Date	Trainee	Date
Module 1.1: Laboratory Orientation				
Module 1.2: Operational Procedures				
Module 1.3: Crime Laboratory Safety Procedures				
Module 1.4: Evidence Management				
Module 2.1: The History of Friction Ridge Skin Identification and Forensic Science				
Module 2.2: The Anatomy of Friction Ridge Skin				
Module 2.3: Friction Ridge Pattern Recognition and Interpretation				
Module 2.4: Known standards – Methods for Recording Friction Ridge Skin				
Module 2.5: Post-Mortem Print Collection Methods				
Module 3.1: Introduction to Latent Prints				
Module 3.2: Introduction to Latent Print Processing				
Module 3.3: Basic Powder Development Methods				
Module 3.4: Chemical Development of Latent Prints				



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Module 3.5: Electronic Equipment: Chemically Developed Latent Prints				
Module 4.1: Recognition and Orientation of Friction Ridge Skin				
Module 4.2: Latent Print Comparison				
Module 4.3: Automated Fingerprint Identification Systems (SPEX, AFIS, IAFIS)				
Module 4.4: Preparation for Court and Legal Issues				
Module 4.5: Ethics in Forensic Science				
Module 5.1: Final Written Examination				
Module 5.2: Moot Court				
Module 6.1: Supervised Case Work				
Module 6.2: Competency Test				
Module 7.1: 100% Administrative and 100% Technical Reviews				

<b>Revision History</b>		
<b>Effective Date</b>	<b>Version Number</b>	<b>Reason</b>
4/12/2013	1	Compliance with ASCLD/LAB Requirements
8/3/15	2	Updated for compliance with revised LAPM22
9/29/15	3	Update to Module 4.2 to include info on simultaneous latent prints

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