EVIDENCE PHOTOGRAPHY TEST SPECIFICATIONS

The exam will cover evidence photography involving crime scenes, fire scenes, accident scenes, aircraft incident scenes, surveillances and hazardous materials scenes. It will also cover the photography of evidence such as fingerprints, tool marks, tire tracks, footprints and footwear impressions, bloodstain patterns, injuries, questioned documents (and other copy work), and other objects as might be required for presentation in a court of law.

MODULE 1:
CAMERA SYSTEMS (26)

Items relating to this category will include digital and film cameras as well as the various lenses and attachments that might be utilized on either type of camera.

A. **Select the appropriate photographic technology and format for subject matter and output requirements. (4)**

1. Knowledge of the types and specifications of cameras appropriate for different photographic assignments
    - Film Cameras
        - Film format (small, medium, large)
        - Film type (selection based on scene evaluation)
    - Digital Cameras
        - Sensor type
        - Sensor size/format
        - File size including image resolution and physical size

B. **Use camera and camera menu settings to create a quality image. (9)**

1. Knowledge of how to operate camera controls and settings
    - Exposure modes
        - Shutter priority
        - Program
        - Aperture priority
        - Manual
    - Metering systems

2. Knowledge of the impact on file size and format (TIFF, JPEG, RAW, etc) on final image
    - Enlarging capabilities and limitations
    - Bit depth
    - Metadata

3. Knowledge of Digital Image Compression
    - Appropriate use of compression (including when the use of same is inappropriate)
    - Lossy versus lossless compression
    - Compression artifacts
    - Repeated compressions

4. Knowledge of the concept of resolution

C. Use photographic accessories to create a quality image. (5)

1. Knowledge of lens modifiers
    - Extension tubes
    - Tele converters
    - Lens shades
    - Filters
        - Color filters for adjusting contrast in black and white photography
        - Color filters for adjusting color temperature in color photography
        - Neutral density filters
        - Polarizing screens
        - UV, Skylight and other optically clear filters used for lens protection

2. Knowledge of appropriate use of camera supports
    - Tripods
    - Gyroscopes
    - Monopods
    - Bean bags

3. Knowledge of how to use remote triggering devices
    - Infrared
    - Photosensitive
    - Radio
    - Cable releases

4. Filters
    - Color filters for adjusting contrast in black and white photography
    - Color filters for adjusting color temperature in color photography
    - Neutral density filters
    - Polarizing screens
    - UV, Skylight and other optically clear filters used for lens protection

D. Select and use various lenses. (5)

1. Knowledge of the lens types and their impact in visually rendering the scene or subject
    - Expansion
    - Compression
    - Barrel distortion

2. Knowledge of lenses and their limits
    - Lens applications (which lens works with the selected camera system)
    - Macro photography

3. Knowledge of focus and focus control
   - Selective focus
     - Manual focus
     - Auto focus modes
   - Zone focusing
     - Focusing by the Rule of Thirds
   - Hyper focal focusing

4. Knowledge of the concept of “normal” focal length and its significance in investigative photography
   - Correct determination of normal focal length for various camera systems

E. Understand imaging media. (3)

1. Knowledge of the care and maintenance of imaging media
   - Storage
   - Formatting the card
   - Deleting images

MODULE 2:
LIGHTING (26)

This portion of the examination will measure (1) how to best light the subject; (2) possible types of lighting (Studio, Ambient, Flash, Daylight); (3) lighting design; and (4) lighting equipment.

A. Understand the relationship between color and light.

1. Knowledge of the color wheel **(4)**
   - Primary colors,
   - Subtractive colors

2. Knowledge of types of light sources **(11)**
   - Daylight
     - Varying light conditions
   - Electronic flash/strobes
     - Through the lens (TTL)
     - Manual
     - Ring flash
     - Zoom flash
   - Fluorescent lighting
   - Tungsten lighting
   - Basic concepts of alternative light sources (ALS)
   - Color temperature
     - Kelvin scale
   - Electromagnetic spectrum
     - Visible light
     - Infrared
     - Ultraviolet

3. Knowledge of the various lighting techniques **(11)**
   - Bounce
   - Diffused
   - Direct
   - Oblique
     - Impression evidence
   - Painting with light
   - Off camera flash technique
   - Feathered
   - Fill

EXPOSURE AND METERS (26)

Items measuring this set of specifications will include (1) how to meter for the correct exposure; and (2) the relationship between shutter speed and f-stop.

A. Employ a light meter properly to achieve desired exposures. (8)

1. Knowledge of types of metering systems
    - Reflected
        - Spot
        - Matrix/Evaluative
        - Center weighted/Average
    - Incident
    - Exposure lock

2. Knowledge of the conditions under which meters should be used

3. Knowledge of how to interpret light meter readings

4. Knowledge of selection of the correct location within the scene from which the light reading is to be taken based upon film or sensor used in capturing the image
    - Gray cards
        - Alternative sources of gray cards
    - Color checkers

B. Set f/stops and shutter speed based upon exposure and desired effects. (14)

1. Knowledge of shutter and shutter speeds
    - Shutter types
    - Exposure control
    - Shutter speed for motion control
        - Camera
        - Subject
            - Angles of motion
    - Settings (full, half, timed exposures, etc)
    - Special techniques
        - Flash sync speeds
        - Long shutter speeds with electronic flash (slow sync)
        - Panning techniques
        - Selective focus

2. Knowledge of diaphragm (f-stops or aperture)
    - Exposure control
    - Depth of field
        - Control mechanisms
            - Aperture settings
            - Lens to subject distance
            - Lens focal length
    - Settings (full, half, etc)

3. Knowledge of ISOs
   - Settings (full, half, etc)
   - Image clarity or resolution
     - Grain
     - Pixels
     - Electronic noise
     - Artifacts

4 Knowledge of calculating equivalent exposures (reciprocity effect)

5. Knowledge of exposure compensation relative to lighting situations (light absorption and reflection values, skin tones, backlighting)

6. Knowledge of exposure compensation
   - Extension factors
   - Filter factors
   - Reciprocity failure
   - Bracketing
   - Automatic modes

C. Verify proper exposure. (2)

1. Knowledge of how to read and interpret a histogram

D. Apply exposure Latitudes. (2)

1. Knowledge of similarities and differences between film and digital
   - Dynamic range
   - Exposure stop range

MODULE 3:
COMPOSITION (17)

Items relating to this area will focus on various aspects of composition including color relationships, framing, using perspective, measuring scales and background.

A. Determine the use of angle of view or perspective. (5)

1. Knowledge of perspective effects and how to achieve them
    - Perspective
        - Framing the subject
        - Relationships
        - Leading lines
    - Camera angle (aspect ratios)
    - Camera position
        - Eliminating extraneous or inflammatory materials
        - Maximizing resolution

B. Demonstrate the proper use measuring scales (rulers) and other evidence markers. (5)

1. Knowledge of ruler size and shape

2. Knowledge of color of scales based on the subject matter

3. Knowledge of how to align the markers properly

4. Knowledge of when to place scales and markers into the scene
    - Following initial photography of the scene

C. Select the correct background. (2)

1. Knowledge of how to select the appropriate contrast for subject being photographed

2. Knowledge regarding the rejection of irrelevant materials or colors (cropping, changing perspective, recomposing)

D. Implement proper scene documentation. (5)

1. Protocols
    - General to Specific
        - Orientation/Overall
        - Relationship/Mid range
        - Identification/Close-up
        - Examination quality/Close-up with scale
        - One-to-one images
    - Photographic slate
    - Photographic logs
    - Four corners of a room

2. Precautions and Scene integrity
    - Integrity of original position/orientation
    - How to photograph unusual positioning of evidence

LEGAL ASPECTS OF PHOTOGRAPHY (5)

Items included in this section relate to any court rulings or legal procedures impact upon forensic photography.

A. Understand and apply relevant court cases. (3)

1. Knowledge of Frye and Daubert

2. Knowledge regarding the chain of custody

3. Knowledge that images must be relevant to the case in question

4. Knowledge that images must truly and accurately depict what it is purported to illustrate

B. Adhere to national guidelines. (2)

1. Knowledge of SWGIT guidelines
    - Connecticut vs. Swinton