Training Course on Drone Forensics and Data Extraction

Professional Development Training Course Outline

Category	Digital Forensics	**Duration**	5 Days
Base Fee	$3,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Introduction

This specialized training course delves into the rapidly emerging field of drone forensics, equipping digital investigators, law enforcement, and security professionals with the crucial skills to acquire, preserve, and analyze data from Unmanned Aerial Vehicles (UAVs) and their associated control systems. Participants will gain hands-on expertise in navigating the complex data artifacts generated by drones, which are increasingly implicated in diverse scenarios ranging from illegal surveillance and contraband delivery to accident reconstruction and privacy violations. Training Course on Drone Forensics and Data Extraction covers both consumer-grade and professional drones, focusing on forensically sound methodologies for extracting vital flight logs, GPS data, video footage, telemetry, and user information.

The program emphasizes practical data extraction techniques from drone internal memory, SD cards, mobile control applications, and cloud-based flight management platforms. With the widespread proliferation of drones in civilian and commercial sectors, understanding their digital footprint is paramount for cybercrime investigations, incident response, and national security. Graduates will be proficient in utilizing specialized forensic tools, interpreting proprietary drone data formats, and developing comprehensive forensic reports that stand up to rigorous scrutiny in legal proceedings, contributing significantly to the evolving landscape of UAV security and digital evidence.

Programme Curriculum

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Course Objectives

1. Identify diverse drone types and architectures relevant to forensic investigations, including consumer and enterprise models.
2. Perform forensically sound data acquisition from drone internal storage, SD cards, and connected devices.
3. Extract and analyze drone flight logs, including GPS coordinates, altitude, speed, and flight paths.
4. Interpret telemetry data and sensor readings to reconstruct drone operational parameters and events.
5. Acquire and analyze video and photographic evidence captured by drone cameras, including metadata analysis.
6. Investigate mobile control applications and their synchronized data for user activity and configuration settings.

7. Analyze cloud-based drone data platforms for stored flight history, user accounts, and mission plans.
8. Understand drone firmware structures and extract firmware for deeper artifact analysis.
9. Identify anti-forensic techniques employed on drones and develop countermeasures for data recovery.
10. Reconstruct drone flight timelines and user actions from correlated data sources.
11. Understand legal frameworks and privacy implications surrounding drone data collection and analysis, particularly in Kenya.
12. Utilize specialized drone forensic tools and develop custom parsing scripts (e.g., Python) for proprietary data.
13. Generate comprehensive forensic reports detailing findings from drone investigations for legal admissibility.

Organizational Benefits

1. Enhanced Investigative Capabilities: Expand the scope of digital investigations to include critical drone-related evidence.
2. Improved Incident Response: Quickly analyze drone data to understand security incidents, accidents, or illicit activities.
3. Proactive Threat Mitigation: Identify and analyze drone threats, including unauthorized surveillance or contraband delivery.
4. Reduced Litigation Risk: Produce robust, admissible evidence for legal cases involving drones (e.g., accidents, privacy violations).
5. Protection of Sensitive Areas: Enhance security measures by understanding how drones operate and collect data around critical infrastructure.
6. Optimized Resource Utilization: Equip internal teams with specialized skills, reducing reliance on expensive external drone forensics experts.
7. Compliance Adherence: Ensure drone evidence collection and analysis practices align with national and international regulations (e.g., KCAA regulations, Kenya Data Protection Act).
8. Actionable Intelligence: Generate valuable threat intelligence on drone capabilities, vulnerabilities, and operator profiles.
9. Increased Investigative Success: Uncover hidden or deleted data from drones that might otherwise be missed.
10. Skill Development & Retention: Foster a highly specialized team capable of handling complex and emerging drone forensic challenges.

Target Participants

- Digital Forensic Examiners
- Law Enforcement Accident Investigators
- Insurance Fraud Investigators

- Cybersecurity Analysts
- Incident Response Teams
- Automotive Engineers (with a security/forensics interest)
- Legal Professionals (involved in vehicle-related cases)
- Vehicle Manufacturers' Security Teams
- Crash Reconstruction Specialists
- E-Discovery Specialists

Course Outline

Module 1: Introduction to Drone Forensics & Ecosystems (UAV Forensics Fundamentals)

- Overview of Drone (UAV/UAS) Technology and Components
- Identifying Sources of Digital Evidence in Drones (Drone itself, Controller, Mobile App, Cloud)
- Legal and Ethical Considerations in Drone Investigations (Kenya's Drone Regulations, Privacy Act)
- Understanding Drone Flight Modes and Data Generation
- **Case Study**: Initial assessment and preservation of a crashed drone at a crime scene.

Module 2: Drone Data Acquisition Techniques (Drone Data Extraction)

- On-Board Data Extraction from Drone Internal Memory and SD Cards
- Logical vs. Physical Acquisition of Drone Data
- Techniques for Acquiring Data from Damaged or Recovered Drones
- Utilizing Commercial and Open-Source Tools for Drone Data Acquisition
- **Case Study**: Extracting flight logs from a DJI Mavic drone's internal storage.

Module 3: Flight Log Analysis & Telemetry Data (Drone Flight Log Forensics)

- Understanding Drone Flight Log Formats and Data Structures
- Analyzing GPS Data, Altitude, Speed, and Motor RPM Logs
- Reconstructing Flight Paths, Take-off/Landing Locations, and Mission Parameters
- Interpreting Telemetry Data for Drone Health and Performance
- **Case Study**: Reconstructing the flight path of a drone used in an unauthorized surveillance incident.

Module 4: Video, Image & Sensor Data Forensics (Drone Media Forensics)

- Extracting and Analyzing On-Board Video Footage and Still Images
- Metadata Analysis of Drone-Captured Media (GPS tags, timestamps, camera settings)
- Interpreting Sensor Data (e.g., LiDAR, Thermal, Multispectral) if applicable
- Recovering Deleted or Fragmented Media Files
- **Case Study**: Analyzing video footage from a drone to identify individuals or objects of interest.

Module 5: Mobile Control App & Cloud Data Forensics (Drone App & Cloud Forensics)

- Acquiring and Analyzing Data from Drone Control Applications on Smartphones/Tablets
- Extracting User Accounts, Settings, and Flight Plans from Mobile Apps
- Investigating Cloud-Based Drone Flight Management Platforms (e.g., DJI Fly, Autel Explorer)
- Challenges of Cloud Data Access and Preservation in Drone Investigations
- **Case Study**: Correlating a drone's flight log with its operator's mobile app activity.

Module 6: Drone Firmware Analysis & Anti-Forensics (Drone Firmware Forensics)

- Introduction to Drone Firmware Architecture and Custom ROMs
- Techniques for Firmware Extraction and Disassembly
- Identifying Anti-Forensic Measures and Data Wiping Attempts on Drones
- Understanding Firmware Vulnerabilities and Exploits
- **Case Study**: Analyzing custom firmware on a drone suspected of bypassing geofencing.

Module 7: Drone Incident Response & Threat Analysis (Drone Incident Response)

- Establishing a Framework for Drone-Related Incident Response
- Identifying Indicators of Compromise (IOCs) in Drone Data
- Investigating Drone Malfunctions, Crashes, and Intentional Misuse
- Understanding Counter-Drone Technologies and their Forensic Implications

- **Case Study**: Responding to an incident where a drone was used to deliver contraband into a restricted area.

Module 8: Reporting & Legal Admissibility of Drone Evidence (Drone Evidence Reporting)

- Best Practices for Documenting Drone Forensic Examinations
- Crafting Comprehensive and Defensible Reports for Legal Proceedings
- Presenting Complex Technical Findings from Drone Data to Non-Technical Audiences
- Understanding the Admissibility of Drone Evidence in Court in Kenya
- **Case Study**: Preparing a mock forensic report for a drone-related privacy violation.

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

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