Training Course on Automotive Forensics and Vehicle Infotainment Systems

Professional Development Training Course Outline

Category	Digital Forensics	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

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This comprehensive training course introduces participants to the rapidly evolving field of automotive forensics, with a deep dive into vehicle infotainment systems and their crucial role in modern investigations. As vehicles transform into complex digital ecosystems, they become rich repositories of digital evidence, holding vital clues for accident reconstruction, criminal investigations, insurance fraud, and cybersecurity breaches. Training Course on Automotive Forensics and Vehicle Infotainment Systems equips digital forensic professionals with the specialized knowledge and practical techniques to acquire, preserve, and analyze data from various in-vehicle systems, including telematics, infotainment units, and Electronic Control Units (ECUs), ensuring forensically sound methodologies for legal admissibility.

The curriculum emphasizes hands-on practical exercises using industry-standard tools and simulated vehicle environments. Participants will learn to navigate proprietary vehicle architectures, decipher CAN bus communications, extract GPS data, call logs, paired device information, and event data recorder (EDR) insights. This course addresses the unique challenges posed by the constant technological advancements in the automotive industry, including connected car technologies, over-the-air (OTA) updates, and emerging cybersecurity threats. Graduates will be prepared to effectively investigate incidents involving modern vehicles, contributing to actionable intelligence and providing expert testimony in diverse legal and corporate settings.

Programme Curriculum

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Course Objectives

1. Understand the architecture and data storage mechanisms of modern vehicle systems, including ECUs, telematics, and infotainment units.
2. Perform forensically sound data acquisition from various vehicle components, distinguishing between volatile and non-volatile data sources.
3. Extract and analyze vehicle infotainment system artifacts, including call logs, paired devices, GPS history, and multimedia files.
4. Interpret Event Data Recorder (EDR) data for accident reconstruction and incident timeline analysis.
5. Analyze telematics data to reconstruct vehicle movements, speed profiles, and driver behavior.
6. Investigate CAN bus communication to understand in-vehicle data flow and potential manipulation.

7. Identify and analyze cybersecurity vulnerabilities and attack vectors within automotive systems.
8. Recover deleted or overwritten data from vehicle modules using advanced forensic techniques.
9. Correlate in-vehicle data with external data sources (e.g., mobile phones, cloud services) for comprehensive investigations.
10. Utilize specialized automotive forensic tools and software for data extraction and analysis.
11. Develop custom parsing techniques for proprietary vehicle data formats.
12. Generate comprehensive forensic reports suitable for legal proceedings, detailing automotive findings.
13. Apply chain of custody principles and best practices for vehicle digital evidence.

Organizational Benefits

1. Enhanced Investigative Capabilities: Broaden the scope of digital investigations to include critical automotive data.
2. Improved Accident Reconstruction: Provide robust, data-driven insights into the causes and circumstances of vehicle accidents.
3. Fraud Detection & Prevention: Uncover evidence of insurance fraud or other illicit activities associated with vehicle usage.
4. Strengthened Cybersecurity Response: Equip teams to identify and respond to cybersecurity incidents targeting vehicles.
5. Reduced Litigation Risk: Produce forensically sound evidence for legal cases involving vehicles, increasing success rates.
6. Protection of Assets: Safeguard intellectual property and sensitive data within automotive systems.
7. Optimized Resource Utilization: Maximize the effectiveness of forensic tools and personnel through specialized training.
8. Proactive Threat Intelligence: Extract valuable intelligence on emerging automotive cyber threats.
9. Compliance Adherence: Ensure investigative practices meet industry standards and regulatory requirements for automotive data.
10. Expertise Development: Foster a highly skilled team capable of handling complex and niche automotive 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 Automotive Digital Forensics (Vehicle Forensics Fundamentals)

- Evolution of Vehicle Systems: From Analog to Connected Cars
- Identifying Digital Evidence Sources in Modern Vehicles (ECU, Infotainment, Telematics, EDR)
- Legal and Ethical Considerations in Automotive Investigations
- Understanding Vehicle Data Hierarchy and Interconnectivity
- **Case Study**: Initial assessment of a vehicle involved in a traffic incident.

Module 2: Vehicle Infotainment System Data Acquisition (Infotainment Data Extraction)

- Overview of Common Infotainment System Architectures (e.g., QNX, Android Auto, CarPlay)
- Methods for Data Acquisition: Logical vs. Physical Extractions
- Utilizing Specialized Tools for Infotainment Data Recovery
- Handling Proprietary File Systems and Databases within IVI
- **Case Study**: Extracting call logs and paired device history from a vehicle's infotainment unit.

Module 3: Infotainment System Artifact Analysis (IVI Artifact Analysis)

- Analyzing Call History, SMS Messages, and Contact Lists from Paired Devices
- Interpreting GPS Navigation History, Destinations, and Waypoints
- Extracting Multimedia Files (Images, Videos, Audio) and Associated Metadata
- Identifying Wi-Fi and Bluetooth Connection Logs
- **Case Study**: Reconstructing a travel itinerary and communication patterns from infotainment data.

Module 4: Event Data Recorder (EDR) Forensics (Crash Data Forensics)

- Understanding the Function and Data Stored by Event Data Recorders ("Black Boxes")
- Acquisition Methods for EDR Data (DLC port, direct-to-module)
- Interpreting Pre-Crash and Crash-Related Data (Speed, Braking, Seatbelt Use, Airbag Deployment)
- Limitations and Admissibility of EDR Data in Court
- **Case Study**: Analyzing EDR data to determine vehicle speed and braking before a collision.

Module 5: Telematics and Connected Car Data (Telematics Forensics)

- Introduction to Telematics Systems and Their Data Collection Capabilities
- Analyzing GPS Tracking, Vehicle Health Monitoring, and Remote Services Data
- Investigating Cloud-Based Telematics Platforms and Associated Mobile Apps
- Challenges of Data Retention and Access from Telematics Providers

- **Case Study**: Using telematics data to reconstruct a vehicle's route and stops over a period.

Module 6: Automotive Network & ECU Forensics (CAN Bus Forensics & ECU Analysis)

- Understanding In-Vehicle Networks: CAN bus, LIN, FlexRay, Ethernet
- Sniffing and Analyzing CAN Bus Traffic for Event Reconstruction
- Introduction to Electronic Control Units (ECUs) and Their Data Content
- Extracting Diagnostic Trouble Codes (DTCs) and Module-Specific Data
- **Case Study**: Analyzing CAN bus data to identify a specific vehicle event or malfunction.

Module 7: Cybersecurity in Automotive Forensics (Vehicle Cybersecurity Forensics)

- Common Automotive Cybersecurity Threats (Remote Exploits, OBD-II Port Attacks)
- Identifying Indicators of Compromise (IOCs) on Vehicle Systems
- Analyzing Firmware for Malware or Unauthorized Modifications
- Addressing Anti-Forensic Techniques in Automotive Systems
- **Case Study**: Investigating a suspected remote compromise of a vehicle's control system.

Module 8: Reporting, Best Practices & Emerging Trends (Automotive Forensic Reporting)

- Best Practices for Documenting Automotive Forensic Investigations
- Crafting Comprehensive and Defensible Reports for Legal and Insurance Cases
- Presenting Complex Technical Findings to Non-Technical Audiences
- Emerging Trends: Autonomous Vehicles, EV Forensics, Over-the-Air Updates
- **Case Study**: Preparing a mock expert report for a vehicle-related criminal case.

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

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now