Firearms and Ballistics Identification Training Course

Professional Development Training Course Outline

Category	Criminology	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Firearms & Ballistics Identification is a critical field in modern forensic science and criminal investigation. Training Course on Firearms & Ballistics Identification equips forensic experts, law enforcement personnel, and criminal justice professionals with the knowledge and hands-on skills needed to examine, identify, and interpret firearm-related evidence. With the rising global threat of gun violence and increased demands for scientific accuracy in court proceedings, understanding the intricacies of ballistics—internal, external, and terminal—is essential for effective criminal justice delivery.

This cutting-edge program dives deep into the mechanics of firearms, ammunition identification, bullet trajectory analysis, gunshot residue interpretation, and firearm tool mark examination. Participants will learn from real-world case studies and explore how ballistics evidence contributes to crime reconstruction, suspect identification, and courtroom testimony. Designed with a hands-on, lab-intensive approach, this course ensures practical competency in handling, analyzing, and interpreting ballistic evidence with advanced forensic technologies.

Programme Curriculum

Firearms and Ballistics Identification Training Course

Introduction

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Course Objectives

1. Understand the fundamental principles of firearms identification.
2. Analyze ballistic trajectories using 3D crime scene reconstruction tools.
3. Examine internal, external, and terminal ballistics.
4. Identify and compare bullets and cartridge cases microscopically.
5. Perform gunshot residue (GSR) analysis using SEM/EDX technologies.
6. Differentiate between toolmarks and striations on fired bullets.
7. Apply automated ballistic identification systems (e.g., IBIS).
8. Reconstruct shooting incidents using trajectory analysis techniques.
9. Assess legal and ethical considerations in firearm forensics.
10. Utilize forensic ballistics in crime scene reconstruction.
11. Present ballistic evidence effectively in a courtroom setting.
12. Review historical and contemporary firearm-related case studies.
13. Investigate the forensic role in mass shootings and terrorism cases.

Target Audiences

1. Forensic Scientists
2. Crime Scene Investigators
3. Police and Law Enforcement Personnel
4. Criminal Justice Students
5. Ballistics Experts
6. Legal Professionals and Prosecutors
7. Homeland Security Operatives
8. Firearm Manufacturers & Technicians

Course Duration: 10 days

Course Modules

Module 1: Introduction to Firearms & Ballistics

- History and evolution of firearms
- Classification of firearms
- Ammunition types and components
- Overview of ballistics subfields
- Firearms laws and regulations
- **Case Study:** Columbine High School Shooting

Module 2: Internal Ballistics

- Chamber pressure analysis
- Propellant ignition sequence
- Bullet acceleration dynamics
- Firearm barrel design impact
- Shot dispersion analysis
- **Case Study:** D.C. Sniper Case

Module 3: External Ballistics

- Projectile flight dynamics
- Wind, gravity, and drag effects
- Trajectory computation methods
- Angle of impact evaluation
- Velocity measurements
- **Case Study:** Las Vegas Shooting (2017)

Module 4: Terminal Ballistics

- Bullet-tissue interaction
- Penetration and fragmentation
- Wound ballistics
- Exit vs. entry wound analysis
- Ballistic gelatin testing
- **Case Study:** JFK Assassination

Module 5: Gunshot Residue Analysis

- GSR collection techniques
- GSR detection using SEM-EDX
- Environmental contamination factors
- Time since discharge estimation
- Interpretation of GSR results
- **Case Study:** Oscar Pistorius Trial

Module 6: Firearm and Ammunition Identification

- Serial number restoration
- Tool mark classification
- Bullet and casing matching
- Manufacturer and caliber ID
- IBIS system use
- **Case Study:** Beltway Sniper Investigation

Module 7: Microscopic Bullet & Cartridge Analysis

- Comparison microscope usage
- Striae and groove patterning
- Bullet deformation analysis
- Cartridge primer identification
- Documentation and imaging
- **Case Study:** Trayvon Martin Case

Module 8: Toolmark Identification

- Rifling marks on bullets
- Breech face marks
- Chamber marks
- Ejector and extractor marks
- Identification vs. elimination
- **Case Study:** Boston Marathon Bombing

Module 9: Shotgun Ballistics

- Shot pellet spread pattern

- Slug and wad analysis
- Gauge comparison
- Choke effect on dispersion
- Range estimation from pattern
- **Case Study:** Sandy Hook Elementary Shooting

Module 10: Firearm Function Testing

- Safe handling procedures
- Malfunction diagnosis
- Trigger pull measurement
- Safety feature testing
- Reproduction of discharge
- **Case Study:** Alec Baldwin Prop Gun Incident

Module 11: Ballistic Trajectory Reconstruction

- Measuring bullet path
- Determining shooter location
- Angle and distance estimation
- 3D modeling of scenes
- Bullet defect analysis
- **Case Study:** Breonna Taylor Shooting

Module 12: Courtroom Presentation of Ballistic Evidence

- Expert witness testimony
- Preparing demonstrative evidence
- Cross-examination readiness
- Communicating complex data
- Chain of custody
- **Case Study:** Kyle Rittenhouse Trial

Module 13: Mass Shootings and Ballistics

- Evidence handling under pressure
- Multiple firearm correlation
- Large-scale crime scene management
- Trauma-informed evidence collection
- Coordination with other agencies
- **Case Study:** Uvalde School Shooting

Module 14: Forensic Ballistics Technology

- IBIS and Evofinder systems
- Digital evidence archiving
- Ballistics imaging tools
- Case management software
- Advancements in 3D imaging
- **Case Study:** Parkland School Shooting

Module 15: Ethics, Law, and Professional Practice

- Legal standards of evidence
- Daubert vs. Frye tests
- Report writing standards

- Bias and subjectivity in analysis
- Continuous professional development
- **Case Study:** Brandon Mayfield Wrongful Arrest

Training Methodology

- Instructor-led interactive lectures
- Hands-on lab simulations and exercises
- Video demonstrations of real crime scene analysis
- Group discussions and problem-solving workshops
- Mock courtroom testimony sessions
- Capstone project based on a real or fictional case

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	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com