



## Accredited Africa Training Institute for Capacity Development

Unit FO409, Hatfield Plaza · 1122 Burnett St, Hatfield 0028 · Pretoria, Gauteng · South Africa

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### COURSE BROCHURE

# Demonstrate An Understanding Of Basic Internal And External Ballistics Training

Law, Military Science and Security / Safety in Society

Unit Standard 119778 · NQF Level 4 · 7 Credits · 4 Days

## COURSE OVERVIEW

This course provides learners with foundational knowledge of internal and external ballistics, enabling them to understand the behaviour of projectiles from ignition to target impact. It is designed to enhance safety and technical competence in environments where firearms or ballistic systems are used, such as security, law enforcement, and military operations.

|                 |                                           |
|-----------------|-------------------------------------------|
| Category        | Law, Military Science and Security        |
| Subfield        | Safety in Society                         |
| Unit Standard   | 119778                                    |
| Accreditation   | SAQA Accredited · NQF Level 4 · 7 Credits |
| Duration        | 4 days                                    |
| Training Method | Online, On-Campus, In-House               |
| Certificate     | Issued via AATICD LMS – verifiable online |

## LEARNING OUTCOMES

- Explain the principles of internal ballistics, including ignition, propellant combustion, and projectile acceleration within the barrel.
- Describe the factors affecting external ballistics, such as gravity, air resistance, and atmospheric conditions.
- Apply basic ballistic calculations to predict projectile trajectory and impact points.
- Analyze the relationship between cartridge components and ballistic performance.
- Evaluate safety considerations related to ballistic forces and projectile behaviour.
- Demonstrate understanding of the key differences between internal and external ballistics.

## WHO SHOULD ATTEND

- This course is intended for security personnel, firearms trainers, law enforcement officers, and anyone requiring a practical understanding of ballistics for occupational safety or operational effectiveness.

## COURSE OUTLINE

### Day 1: Foundations of Ballistics and Firearm Safety

- Introduction to ballistics: internal, external, and terminal.
- Firearm anatomy: barrel, chamber, action, and sights.
- Firearm safety rules: safe direction, trigger discipline, and storage.
- Basic physics: velocity, kinetic energy, and momentum.
- Overview of SA Firearms Control Act and range etiquette.

### Day 2: Internal Ballistics – From Ignition to Muzzle Exit

- Ignition, propellant burn, and pressure build-up.
- Bullet engagement with rifling: spin and stability.
- Measuring chamber pressure and velocity.
- Influence of barrel length and twist rate on velocity and accuracy.
- Ammunition selection: bullet weight, shape, and powder charge.
- Muzzle velocity and its variability.

### Day 3: External Ballistics – The Bullet's Flight Path

- Trajectory components: line of sight, line of departure, and drop.
- Drag and deceleration: drag coefficient and velocity decay.
- Ballistic coefficient (BC) and its effect on flight.
- Wind deflection: crosswind and headwind effects.
- Sight adjustment: minutes of angle (MOA) and mil-radians.
- Practical exercises: using ballistic tables and software.

### Day 4: Practical Application, Integration, and Assessment

- Environmental effects on ballistics: air density and temperature.
- Practical shooting exercises with varying distances and wind conditions.
- Using ballistic calculators and data books.
- Troubleshooting common accuracy issues.
- Review of key concepts and Q&A session.
- Written and practical assessment for Unit Standard 119778.

## ASSESSMENT & CERTIFICATION

Delegates are assessed through exercises and a final test. A mark of **50% or above** earns an **AATICD Certificate of Completion**, issued digitally with a unique verification code. This course carries **7 NQF credits** at **NQF Level 4**.

## PRICING (PER DELEGATE, EX-VAT)

| Delegates | Training Method      | Price per Delegate | Total       |
|-----------|----------------------|--------------------|-------------|
| 1         | Online               | R 20,500.00        | R 20,500.00 |
| 1         | In-House             | R 26,600.00        | R 26,600.00 |
| 1         | On-Campus (Pretoria) | R 30,800.00        | R 30,800.00 |

## UPCOMING SESSIONS

| Start       | End         | Method    | Venue                   |
|-------------|-------------|-----------|-------------------------|
| 11 Aug 2026 | 14 Aug 2026 | On-Campus | Durban, South Africa    |
| 11 Aug 2026 | 14 Aug 2026 | On-Campus | Abu Dhabi, UAE          |
| 11 Aug 2026 | 14 Aug 2026 | On-Campus | Pretoria, South Africa  |
| 11 Aug 2026 | 14 Aug 2026 | On-Campus | Dubai, UAE              |
| 11 Aug 2026 | 14 Aug 2026 | On-Campus | Cape Town, South Africa |
| 11 Aug 2026 | 14 Aug 2026 | On-Campus | Mauritius               |
| 17 Aug 2026 | 20 Aug 2026 | On-Campus | Dubai, UAE              |
| 17 Aug 2026 | 20 Aug 2026 | On-Campus | Pretoria, South Africa  |

Contact us if no suitable date is listed – on-demand sessions can be arranged for groups.

## HOW TO GET A QUOTE OR APPLY

1. **Get an instant quotation online:** visit [www.aaticd.co.za](http://www.aaticd.co.za), open the page for this course (Unit Standard 119778) and click **Get A Quote / Apply**. Select your training method and number of delegates – your quotation is generated immediately and emailed to you with the course brochure attached.
2. **Apply by email:** send the course title, your preferred training method (Online, In-House or On-Campus Pretoria), the number of delegates and your preferred dates to [apply@aaticd.co.za](mailto:apply@aaticd.co.za) – our team will reply with a formal quotation.
3. **Apply by phone or WhatsApp:** call +27 12 004 8389 or WhatsApp +27 65 077 6310 and we will prepare your quotation and reserve your seats.
4. **Confirm your booking:** accept the quotation and settle the invoice. As soon as payment is confirmed your delegates are enrolled and receive their AATICD LMS login details by email, along with joining instructions for their chosen training method.

Group discounts apply automatically – the more delegates you enrol, the lower the price per delegate. No payment is required to request a quotation.

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