



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

Ground Based Air Defence Image Analysis

Law, Military Science and Security / Sovereignty of the State

Unit Standard 244513 · NQF Level 5 · 12 Credits · 9 Days

COURSE OVERVIEW

This course equips learners with the skills to analyse ground based air defence (GBAD) environments for image analysis. It covers the interpretation of imagery from GBAD systems, threat assessment, and reporting. Successful learners will be able to apply analytical techniques to support decision-making in defence and security contexts.

Category	Law, Military Science and Security
Subfield	Sovereignty of the State
Unit Standard	244513
Accreditation	SAQA Accredited · NQF Level 5 · 12 Credits
Duration	9 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Analyse the ground based air defence environment and its impact on image analysis.
- Apply image interpretation techniques to identify and classify GBAD systems.
- Evaluate threat levels based on imagery of GBAD deployments.
- Demonstrate the ability to compile accurate image analysis reports for GBAD environments.
- Implement quality control measures to ensure reliability of image analysis outputs.

WHO SHOULD ATTEND

- This course is designed for image analysts, intelligence personnel, and defence force members who require specialised knowledge in ground based air defence image analysis.
- It is also suitable for security professionals and contractors working in air defence environments.

COURSE OUTLINE

Day 1: Introduction to Ground Based Air Defence and Image Analysis

- Overview of GBAD systems and their operational context
- Introduction to image analysis: concepts and terminology
- Types of sensors used in GBAD (radar, electro-optical, infrared)
- Basic principles of target detection and identification
- Role of image analysis in modern warfare
- Ethical and legal considerations

Day 2: Fundamentals of Image Interpretation

- Electromagnetic spectrum: visible, infrared, radar bands
- Image characteristics: spatial, spectral, temporal resolution
- Interpretation keys: shape, size, shadow, tone, texture
- Common image artefacts and their causes
- Practical exercise: interpreting sample imagery

Day 3: Sensor Systems and Image Acquisition

- Active vs passive sensors
- Electro-optical sensors: CCD, CMOS, multispectral
- Infrared sensors: thermal imaging, FLIR
- Radar imaging: Synthetic Aperture Radar (SAR), Moving Target Indication (MTI)
- Acquisition parameters: altitude, look angle, resolution
- Data storage and formats

Day 4: Target Detection and Recognition Techniques

- Target detection: thresholding, CFAR, matched filters
- Change detection: image differencing, temporal analysis
- Target recognition: feature extraction, classification
- Military target signatures: air and ground
- Clutter reduction techniques
- Practical exercise: target detection on sample data

Day 5: Image Processing and Enhancement

- Image enhancement: histogram equalisation, filtering
- Image registration: feature-based, area-based
- Georeferencing: coordinate systems, orthorectification
- Image fusion: pan-sharpening, multi-sensor fusion
- Segmentation: edge detection, region growing
- Practical exercise: enhancing and registering images

Day 6: Automated Target Recognition (ATR) and Machine Learning

- ATR overview: template matching, feature-based
- Machine learning basics: supervised vs unsupervised
- Feature extraction: HOG, SIFT, deep features
- Classification algorithms: SVM, neural networks
- Performance metrics: precision, recall, ROC curves
- Practical exercise: training a classifier on image data

Day 7: Threat Assessment and Decision Support

- Threat assessment: prioritisation, kinematic analysis
- Decision support systems: data fusion, display
- IFF systems and integration
- Rules of engagement and escalation procedures
- Practical exercise: threat assessment scenario

Day 8: Operational Planning and Integration

- Mission planning: sensor tasking, coverage analysis
- Command and control interfaces
- Quality assurance: accuracy, timeliness, completeness
- Dynamic re-tasking and real-time analysis
- Practical exercise: mission planning simulation

Day 9: Capstone Exercise and Course Review

- Capstone exercise: simulated GBAD scenario with image analysis tasks
- Post-exercise debrief and feedback
- Course review: key takeaways and best practices
- Certification assessment preparation
- Final Q&A; session

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 **12 NQF credits** at **NQF Level 5**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 35,000.00	R 35,000.00
1	In-House	R 45,500.00	R 45,500.00
1	On-Campus (Pretoria)	R 52,500.00	R 52,500.00

UPCOMING SESSIONS

Start	End	Method	Venue
10 Aug 2026	20 Aug 2026	On-Campus	Durban, South Africa
10 Aug 2026	20 Aug 2026	On-Campus	Mauritius
11 Aug 2026	21 Aug 2026	On-Campus	Cape Town, South Africa
12 Aug 2026	24 Aug 2026	On-Campus	Dubai, UAE
13 Aug 2026	25 Aug 2026	On-Campus	Pretoria, South Africa
14 Aug 2026	26 Aug 2026	On-Campus	Abu Dhabi, UAE
17 Aug 2026	27 Aug 2026	On-Campus	Shenzhen, China
18 Aug 2026	28 Aug 2026	On-Campus	Dubai, UAE

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, open the page for this course (Unit Standard 244513) 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 – 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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