



Accredited Africa Training Institute for Capacity Development

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

Tel: +27 12 004 8389 · Mobile: +27 65 077 6310

Email: apply@aatikd.co.za · Website: www.aatikd.co.za

COURSE BROCHURE

Aerial Image Scaling and Mensuration

Law, Military Science and Security / Sovereignty of the State

Unit Standard 244511 · NQF Level 5 · 8 Credits · 5 Days

COURSE OVERVIEW

This course equips participants with the skills to perform accurate scaling and mensuration of vertical and oblique aerial images. Learners will gain the ability to extract precise measurements and interpret aerial imagery for applications in mapping, surveying, and spatial data analysis.

Category	Law, Military Science and Security
Subfield	Sovereignty of the State
Unit Standard	244511
Accreditation	SAQA Accredited · NQF Level 5 · 8 Credits
Duration	5 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply principles of photogrammetry to scale vertical and oblique aerial images.
- Analyze image geometry to determine scale and correct for distortions.
- Implement mensuration techniques to extract accurate distances, areas, and heights from aerial images.
- Evaluate the accuracy of measurements derived from different image types.
- Demonstrate the use of scaling factors and measurement tools in practical scenarios.
- Design a workflow for integrating scaled aerial image data into GIS projects.

WHO SHOULD ATTEND

- This course is designed for GIS technicians, surveyors, cartographers, and professionals working with aerial imagery in fields such as urban planning, agriculture, and environmental management.

COURSE OUTLINE

Day 1: Introduction to Aerial Imagery and Scaling Principles

- Overview of aerial imaging platforms and sensors
- Scale concepts: representative fraction, bar scale, and verbal scale
- Factors affecting scale: altitude, focal length, and sensor pixel size
- Introduction to GSD and its calculation
- Scale variation due to terrain and camera tilt
- Common coordinate systems and map projections used in aerial imagery

Day 2: Measurement Techniques and Tools

- Measurement tools in GIS and photogrammetry software (e.g., QGIS, ArcGIS, Pix4D)
- Converting pixel measurements to ground distances using scale and GSD
- Measuring areas: planimetric vs. slope-corrected areas
- Height estimation: relief displacement formula and shadow measurement
- Accuracy considerations: error sources and precision limits
- Practical exercise: measuring features on orthophotos

Day 3: Advanced Scaling and Orthorectification

- Principles of orthorectification: removing relief and tilt distortion
- Collecting GCPs: field survey methods and accuracy requirements
- Using DEMs for terrain correction
- Orthorectification workflow in photogrammetry software
- Scale in oblique imagery: perspective vs. orthographic scale
- Quality assessment: RMSE and residual analysis

Day 4: Mensuration for Specific Applications

- Agricultural applications: estimating field area, plant spacing, and canopy cover
- Environmental monitoring: measuring water body extent, vegetation boundaries
- Engineering: cut/fill volume calculations from DSMs
- Change detection: comparing multi-temporal imagery and DSMs
- Feature extraction: digitizing roads, buildings, and boundaries
- Case studies: real-world examples from South African contexts

Day 5: Integration, Workflow, and Quality Assurance

- End-to-end workflow planning: data capture, processing, measurement, validation
- Quality assurance: reproducibility, accuracy standards, and documentation
- Reporting: presenting measurements with confidence intervals
- Ethical and legal aspects: privacy, data ownership, and survey regulations
- Future trends: AI-assisted mensuration and real-time analysis
- Course review and assessment

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 **8 NQF credits** at **NQF Level 5**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 17,700.00	R 17,700.00
1	In-House	R 23,100.00	R 23,100.00
1	On-Campus (Pretoria)	R 26,700.00	R 26,700.00

UPCOMING SESSIONS

Start	End	Method	Venue
24 Aug 2026	28 Aug 2026	On-Campus	Victoria Falls, Zimbabwe
24 Aug 2026	28 Aug 2026	On-Campus	Bangkok, Thailand
24 Aug 2026	28 Aug 2026	On-Campus	Harare, Zimbabwe
24 Aug 2026	28 Aug 2026	On-Campus	Shenzhen, China
24 Aug 2026	28 Aug 2026	On-Campus	Durban, South Africa
24 Aug 2026	28 Aug 2026	On-Campus	Abu Dhabi, UAE
31 Aug 2026	04 Sep 2026	On-Campus	Shenzhen, China
31 Aug 2026	04 Sep 2026	On-Campus	Harare, Zimbabwe

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 244511) 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.

Accredited Africa Training Institute for Capacity Development

Unit FO409, Hatfield Plaza, 1122 Burnett St, Hatfield 0028, Pretoria, Gauteng, South Africa
Tel: +27 12 004 8389 · WhatsApp: +27 65 077 6310 · apply@aaticd.co.za · www.aaticd.co.za