



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

Measure And Set The Stagger And Height Of The Contact Wire On Overhead Traction Equipment Ohte Under Live Conditions Training

Physical Planning and Construction / Civil Engineering Construction

Unit Standard 119892 · NQF Level 4 · 12 Credits · 9 Days

COURSE OVERVIEW

This course equips learners with the knowledge and practical skills to accurately measure and set the stagger and height of contact wires on overhead traction equipment (Ohte) under live conditions. It ensures compliance with safety regulations and industry standards, enabling safe and efficient railway operations.

Category	Physical Planning and Construction
Subfield	Civil Engineering Construction
Unit Standard	119892
Accreditation	SAQA Accredited · NQF Level 4 · 12 Credits
Duration	9 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Demonstrate the correct procedures for measuring contact wire stagger and height using specialized tools under live conditions.
- Apply safety protocols and risk assessment techniques when working on live overhead traction equipment.
- Analyze measurement data to determine deviations from specified standards and required adjustments.
- Implement adjustment procedures to set stagger and height within prescribed tolerances.
- Evaluate the effectiveness of adjustments through post-measurement verification and documentation.
- Comply with relevant South African standards and organizational procedures for Ohte maintenance.

COURSE OUTLINE

Day 1: Introduction to Overhead Traction Equipment and Safety Fundamentals

- Course overview and assessment criteria
- OTE system components: catenary, contact wire, droppers, registration arms
- Introduction to contact wire stagger and height parameters
- Legal framework: OHS Act, SANS 10219, and railway safety regulations
- Personal protective equipment (PPE) and safety procedures for live working
- Hazard identification and risk assessment for OTE work

Day 2: Live Working Principles and Risk Management

- Live working philosophy: why work live?
- Electrical hazards: arc flash, shock, induced voltages
- Risk assessment tools: JSA, HIRA
- Permit-to-work systems and isolation procedures
- Emergency response: rescue from height and electrical burn treatment
- Communication protocols and teamwork in live environments

Day 3: Tools, Equipment, and Measuring Instruments

- Contact wire measuring gauge: types and features
- Height and stagger measurement tools: laser and mechanical
- Tension measuring devices and dynamometers
- Insulated tools and hot sticks
- Tool inspection, calibration, and storage procedures
- Practical session: handling and reading instruments

Day 4: Theoretical Measurement of Stagger and Height

- Stagger: definition, purpose, and typical values (e.g., ± 200 mm)
- Height: nominal height, gradient, and variations
- Effect of temperature on wire sag and tension
- Calculation of stagger and height adjustments
- Reading and interpreting construction drawings
- Tolerances and deviation limits per standards

Day 5: Practical Measurement Techniques Under Live Conditions

- Pre-measurement safety checks and briefing
- Using insulated poles and hot sticks for measurement
- Step-by-step measurement of stagger and height
- Recording data: forms, digital logging
- Common mistakes: parallax, instrument misalignment
- Practical exercise: measuring on a live test track

Day 6: Adjusting Stagger and Height Under Live Conditions

- Adjustment hardware: registration arms, steady arms, droppers
- Tools for adjustment: spanners, tensioning devices
- Procedure for adjusting stagger without de-energizing
- Procedure for adjusting height using droppers
- Verification measurements after adjustment

- Pantograph contact wire interaction and quality criteria

Day 7: Troubleshooting and Defect Identification

- Common defects: excessive stagger, low height, wire undulations
- Causes: temperature changes, wear, foundation settlement
- Defect classification: critical, major, minor
- Troubleshooting methodology: observe, measure, analyse, correct
- Case studies of typical OHTE problems
- Practical defect identification on training track

Day 8: Record Keeping, Reporting, and Quality Assurance

- Documentation requirements: logbooks, inspection reports
- Data capture methods: paper vs. digital
- Report writing: structure, clarity, accuracy
- Quality assurance: audits, verification, and sign-off
- Corrective action tracking and close-out
- Practical session: completing a full inspection report

Day 9: Integrated Practical Assessment and Course Review

- Simulated live work scenario: full process from risk assessment to sign-off
- Independent measurement of stagger and height
- Adjustment of a section of contact wire
- Documentation and reporting
- Individual feedback and performance review
- Course summary and question-and-answer session
- Certification requirements and next steps

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 4**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 33,300.00	R 33,300.00
1	In-House	R 43,300.00	R 43,300.00
1	On-Campus (Pretoria)	R 50,000.00	R 50,000.00

UPCOMING SESSIONS

Start	End	Method	Venue
05 Aug 2026	17 Aug 2026	On-Campus	Pretoria, South Africa
05 Aug 2026	17 Aug 2026	On-Campus	Lagos, Nigeria
06 Aug 2026	18 Aug 2026	On-Campus	Johannesburg, South Africa
07 Aug 2026	19 Aug 2026	On-Campus	Mauritius
10 Aug 2026	20 Aug 2026	On-Campus	Dubai, UAE
11 Aug 2026	21 Aug 2026	On-Campus	Pretoria, South Africa
12 Aug 2026	24 Aug 2026	On-Campus	Abu Dhabi, UAE
13 Aug 2026	25 Aug 2026	On-Campus	Mauritius

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 119892) 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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