



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

Prepare And Install A Booster Return Conductor On 25 50 Kv Ac Overhead Traction Equipment Ohte Under Isolated And Earthed Conditions Training

Physical Planning and Construction / Civil Engineering Construction

Unit Standard 119881 · NQF Level 4 · 9 Credits · 6 Days

COURSE OVERVIEW

This course equips learners with the knowledge and practical skills to prepare and install a booster return conductor on 25/50 kV AC overhead traction equipment (Ohte) under both isolated and earthed conditions. It ensures compliance with safety regulations and industry standards, enabling safe and efficient maintenance of railway electrification systems.

Category	Physical Planning and Construction
Subfield	Civil Engineering Construction
Unit Standard	119881
Accreditation	SAQA Accredited · NQF Level 4 · 9 Credits
Duration	6 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply safety procedures for working on Ohte under isolated and earthed conditions.
- Demonstrate the correct selection and use of tools and equipment for booster return conductor installation.
- Implement installation procedures for booster return conductors on 25/50 kV AC traction systems.
- Analyze the electrical and mechanical requirements for secure conductor connections.
- Evaluate the integrity of installed conductors through inspection and testing.
- Comply with relevant standards, regulations, and company policies during installation.

WHO SHOULD ATTEND

- This course is intended for electrical technicians, linesmen, and maintenance personnel working on overhead traction equipment in the railway industry.
- It is also suitable for supervisors and engineers seeking to enhance their practical understanding of booster return conductor installation.

COURSE OUTLINE

Day 1: Introduction to OHTE Systems and Safety Fundamentals

- Overview of 25/50 kV AC traction power supply.
- Components of OHTE: catenary, contact wire, return conductor, booster transformers.
- Purpose and function of the booster return conductor.
- Safety legislation: OHS Act, SANS 10219, and relevant standards.
- Hazard identification: electrical shock, arc flash, working at height.
- Isolation and earthing principles.
- Personal protective equipment (PPE) for OHTE work.
- Introduction to work permits and safety documentation.

Day 2: Tools, Equipment, and Pre-Installation Procedures

- Types of tools: tensioning devices, crimping tools, hoists, and insulated tools.
- Equipment inspection and certification.
- Reading and interpreting installation drawings and schematics.
- Site assessment: access, ground conditions, existing infrastructure.
- Material handling: conductor coils, insulators, clamps, connectors.
- Pre-installation checks: conductor continuity, insulation resistance.
- Setting up temporary earthing and bonding.
- Work permit and risk assessment completion.

Day 3: Installation Techniques for Booster Return Conductor Under Isolated Conditions

- Step-by-step isolation procedure: switching, proving dead, earthing.
- Installing support structures: brackets, insulators, and clamps.
- Stringing the return conductor: pulling, tensioning, and sag adjustment.
- Connecting booster transformers: primary and secondary windings.
- Bonding connections to rails and earthing systems.
- Mid-point and sectioning connections.
- Testing continuity and insulation after installation.
- Documentation of installation parameters.

Day 4: Installation Under Earthed Conditions and Advanced Techniques

- Working under earthed conditions: principles and precautions.
- Use of hot sticks and insulated platforms.
- Installing conductor while maintaining earth continuity.
- Adjusting tension and sag without de-energising adjacent lines.
- Handling booster transformers under earthed conditions.
- Emergency procedures: rescue from height, electric shock first aid.
- Coordination with network control and operations.
- Quality assurance checks during installation.

Day 5: Testing, Commissioning, and Troubleshooting

- Testing equipment: megger, micro-ohmmeter, phase rotation tester.
- Insulation resistance testing: conductor to earth, between phases.
- Continuity testing of bonding and connections.
- Booster transformer ratio and polarity tests.
- Fault finding: poor connections, incorrect tension, earth faults.

- Commissioning checklist and sign-off.
- Updating as-built drawings and records.
- Handover to maintenance team.

Day 6: Practical Integration, Assessment, and Certification

- Simulated installation exercise: from planning to commissioning.
- Practical assessment: individual tasks under supervision.
- Safety compliance evaluation.
- Review of common errors and best practices.
- Written knowledge test.
- Feedback session and areas for improvement.
- Certification requirements and next steps.
- Course evaluation and closure.

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 **9 NQF credits** at **NQF Level 4**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 25,600.00	R 25,600.00
1	In-House	R 33,300.00	R 33,300.00
1	On-Campus (Pretoria)	R 38,400.00	R 38,400.00

UPCOMING SESSIONS

Start	End	Method	Venue
03 Aug 2026	10 Aug 2026	On-Campus	Pretoria, South Africa
03 Aug 2026	10 Aug 2026	On-Campus	Lagos, Nigeria
04 Aug 2026	11 Aug 2026	On-Campus	Johannesburg, South Africa
05 Aug 2026	12 Aug 2026	On-Campus	Mauritius
06 Aug 2026	13 Aug 2026	On-Campus	Cape Town, South Africa
07 Aug 2026	14 Aug 2026	On-Campus	Dubai, UAE
10 Aug 2026	17 Aug 2026	On-Campus	Abu Dhabi, UAE
11 Aug 2026	18 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 119881) 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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