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@aaticd.co.za · Website: www.aaticd.co.za

COURSE BROCHURE

Heavy On-Track Maintenance Machine Operation

Physical Planning and Construction / Civil Engineering Construction

Unit Standard 253975 · NQF Level 2 · 17 Credits · 14 Days

COURSE OVERVIEW

This course equips learners with the knowledge and practical skills to safely and efficiently operate heavy on-track maintenance machines used in railway infrastructure maintenance. Learners will understand machine controls, safety protocols, and operational procedures to ensure track integrity and workplace safety.

Category	Physical Planning and Construction
Subfield	Civil Engineering Construction
Unit Standard	253975
Accreditation	SAQA Accredited · NQF Level 2 · 17 Credits
Duration	14 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS — verifiable online

LEARNING OUTCOMES

- Apply pre-operational checks and start-up procedures according to manufacturer specifications and safety regulations.
- Demonstrate safe operation of the machine on-track, including maneuvering, positioning, and performing maintenance tasks.
- Analyze track conditions and adjust machine operations to maintain track geometry and stability.
- Implement emergency shutdown procedures and respond to operational hazards effectively.
- Evaluate machine performance and conduct routine post-operation inspections and reporting.

WHO SHOULD ATTEND

- This course is designed for railway maintenance personnel, machine operators, and supervisors responsible for operating or overseeing heavy on-track maintenance machinery on rail networks.

COURSE OUTLINE

Day 1: Introduction to Heavy On-Track Maintenance Machines

- Types of heavy on-track maintenance machines (e.g., tampers, stabilizers, regulators).
- Key components: engine, hydraulic systems, control panels, work heads.
- Basic track geometry and maintenance principles.
- Safety regulations: OHS Act, Railway Safety Regulator requirements.
- Personal protective equipment (PPE) and site safety protocols.

Day 2: Safety and Risk Management

- Risk assessment methodologies (JSA, HIRA).
- Machine-specific hazards: moving parts, high pressure, electrical.
- Emergency stop procedures and fire extinguisher use.
- Track possession and protection systems.
- Communication with lookouts and controllers.

Day 3: Machine Inspection and Pre-Operational Checks

- Walk-around inspection procedure.
- Engine and hydraulic system checks.
- Brake and steering system verification.
- Control and instrumentation functionality.
- Documentation and reporting of defects.

Day 4: Controls and Basic Operation

- Control layout: joysticks, pedals, switches.
- Engine start/stop procedure.
- Steering and braking controls.
- Instrument panel: gauges, warning lights.
- Auxiliary systems operation.

Day 5: Operating Principles of Tamping Machines

- Track geometry correction concepts.
- Tamping unit components: tines, vibrators, squeeze blocks.
- Setting tamping parameters.
- Manual vs. automatic tamping modes.
- Quality checks after tamping.

Day 6: Operating Principles of Ballast Regulators

- Ballast functions and types.
- Regulator attachments and adjustments.
- Plowing, winging, and brooming techniques.
- Working with different track configurations.
- Ballast distribution quality standards.

Day 7: Operating Principles of Dynamic Track Stabilizers

- Track settlement and stabilization theory.
- Stabilizer components: vibrators, measuring systems.
- Parameter adjustment for different track conditions.
- Monitoring stabilization results.

- Coordination with other machines.

Day 8: Advanced Machine Maneuvering and Positioning

- Steering techniques on curves and turnouts.
- Positioning for tamping/regulating operations.
- Use of laser and GPS guidance systems.
- Operating on slopes and embankments.
- Parking and securing the machine.

Day 9: Routine Maintenance and Troubleshooting

- Lubrication schedules and procedures.
- Hydraulic system checks and bleeding.
- Electrical system checks: batteries, wiring.
- Troubleshooting common problems.
- Maintenance documentation.

Day 10: Track Measurement and Quality Control

- Track geometry standards and tolerances.
- Manual and automated measurement tools.
- Data interpretation and defect identification.
- Quality assurance procedures.
- Corrective actions for non-conformance.

Day 11: Communication and Team Coordination

- Radio communication etiquette and codes.
- Hand signals for machine movement.
- Team roles and responsibilities.
- Managing multiple machines on site.
- Emergency communication procedures.

Day 12: Environmental and Operational Best Practices

- Spill prevention and response.
- Waste management and recycling.
- Eco-driving techniques.
- Dust suppression and noise reduction.
- Environmental compliance requirements.

Day 13: Simulated Operations and Scenario Training

- Simulated track maintenance scenarios.
- Fault finding and corrective actions.
- Emergency drills: fire, machine failure, injury.
- Time management and productivity.
- Debrief and performance review.

Day 14: Assessment and Final Review

- Written test covering theory.
- Practical assessment: pre-start, operation, shutdown.
- Oral questioning on safety and procedures.
- Feedback session and improvement areas.
- Certification process 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 **17 NQF credits** at **NQF Level 2**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 46,100.00	**R 46,100.00**
1	In-House	R 59,900.00	**R 59,900.00**
1	On-Campus (Pretoria)	R 69,200.00	**R 69,200.00**

UPCOMING SESSIONS

Start	End	Method	Venue
04 Aug 2026	21 Aug 2026	On-Campus	Mauritius
05 Aug 2026	24 Aug 2026	On-Campus	Cape Town, South Africa
06 Aug 2026	25 Aug 2026	On-Campus	Dubai, UAE
07 Aug 2026	26 Aug 2026	On-Campus	Pretoria, South Africa
07 Aug 2026	26 Aug 2026	On-Campus	Lagos, Nigeria
10 Aug 2026	27 Aug 2026	On-Campus	Durban, South Africa
10 Aug 2026	27 Aug 2026	On-Campus	Mauritius
11 Aug 2026	28 Aug 2026	On-Campus	Cape Town, 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**, open the page for this course (Unit Standard 253975) 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