



## 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

# Electrical And Mechanical Components Of A Winder Training

Manufacturing, Engineering and Technology / Fabrication and Extraction

Unit Standard 110172 · NQF Level 3 · 9 Credits · 6 Days

## COURSE OVERVIEW

This course is designed to equip learners with the knowledge and skills to identify, explain, and maintain the electrical and mechanical components of a winder. It covers the safe operation, inspection, and troubleshooting of winder systems, ensuring compliance with industry standards and workplace safety regulations. The course aims to enhance operational efficiency and reduce downtime through proper component understanding.

|                 |                                           |
|-----------------|-------------------------------------------|
| Category        | Manufacturing, Engineering and Technology |
| Subfield        | Fabrication and Extraction                |
| Unit Standard   | 110172                                    |
| Accreditation   | SAQA Accredited · NQF Level 3 · 9 Credits |
| Duration        | 6 days                                    |
| Training Method | Online, On-Campus, In-House               |
| Certificate     | Issued via AATICD LMS – verifiable online |

## LEARNING OUTCOMES

- Identify and describe the function of electrical components such as motors, drives, and control systems in a winder.
- Apply safe work procedures when inspecting and testing mechanical components including brakes, clutches, and ropes.
- Analyze common faults in electrical and mechanical winder systems and recommend corrective actions.
- Demonstrate the ability to perform routine inspections and preventive maintenance on winder components.
- Evaluate the condition of winder components using appropriate testing and diagnostic tools.
- Implement maintenance schedules and report findings in accordance with organisational procedures.

## WHO SHOULD ATTEND

- This course is intended for winding machine operators, maintenance technicians, and engineering personnel responsible for the operation, maintenance, and fault-finding of winders in mining and industrial environments.

## COURSE OUTLINE

### Day 1: Introduction to Winder Systems and Safety

- Overview of mine winders: drum, friction, and Blair multi-rope.
- Main components: drum, ropes, headgear, sheaves, and conveyances.
- Electrical components: motors, drives, and control systems.
- Mechanical components: brakes, clutches, and gearboxes.
- Safety regulations and lockout/tagout procedures.
- Personal protective equipment (PPE) requirements.

### Day 2: Electrical Components and Control Systems

- AC vs DC motors: characteristics and applications.
- Motor starters and speed control methods.
- Variable frequency drives (VFDs) – principles and components.
- Programmable logic controllers (PLCs) in winder control.
- Sensors: speed, position, and load cells.
- Human-machine interface (HMI) displays.
- Electrical safety: earthing, overcurrent protection, and interlocks.

### Day 3: Mechanical Components and Braking Systems

- Drum types: cylindrical, conical, and bi-cylindrical.
- Wire ropes: construction, lay, and attachment methods.
- Head sheaves and deflection sheaves.
- Braking systems: disc brakes, drum brakes, and emergency brakes.
- Brake control: hydraulic and pneumatic systems.
- Lubrication: grease and oil systems for bearings and gears.
- Mechanical inspections: wear measurement and alignment checks.

### Day 4: Winder Operation and Monitoring Systems

- Operating modes: manual, semi-automatic, and automatic.
- Speed control and depth indication.
- Load monitoring: over/under load detection.
- Interlock systems: overspeed, overwind, and slack rope.
- Alarm systems and annunciators.
- Troubleshooting: electrical and mechanical fault finding.
- Logbook entries and shift reports.

### Day 5: Maintenance and Inspection Procedures

- Preventive maintenance schedules.
- Electrical maintenance: motor brushes, contactors, and wiring.
- Mechanical maintenance: brake adjustment, rope lubrication.
- Rope inspection: diameter measurement, broken wires, and corrosion.
- Bearing inspection and replacement criteria.
- Gearbox oil analysis and change procedures.
- Condition monitoring: vibration analysis and thermography.

### Day 6: Integration, Troubleshooting, and Assessment

- Case studies of winder faults and solutions.

- Electrical troubleshooting: control circuit faults.
- Mechanical troubleshooting: brake dragging, rope slip.
- System integration: how electrical and mechanical systems interact.
- Final assessment: written test and practical demonstration.
- Review of key concepts and 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 **9 NQF credits** at **NQF Level 3**.

## 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                   |
|-------------|-------------|-----------|-------------------------|
| 07 Aug 2026 | 14 Aug 2026 | On-Campus | Pretoria, South Africa  |
| 07 Aug 2026 | 14 Aug 2026 | On-Campus | Lagos, Nigeria          |
| 10 Aug 2026 | 17 Aug 2026 | On-Campus | Durban, South Africa    |
| 10 Aug 2026 | 17 Aug 2026 | On-Campus | Mauritius               |
| 11 Aug 2026 | 18 Aug 2026 | On-Campus | Cape Town, South Africa |
| 12 Aug 2026 | 19 Aug 2026 | On-Campus | Dubai, UAE              |
| 13 Aug 2026 | 20 Aug 2026 | On-Campus | Pretoria, South Africa  |
| 14 Aug 2026 | 21 Aug 2026 | On-Campus | Abu Dhabi, 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](http://www.aaticd.co.za), open the page for this course (Unit Standard 110172) 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](mailto: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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