



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

Milling Tandem Operation For Sugar Processing Training

Agriculture and Nature Conservation / Secondary Agriculture

Unit Standard 114306 · NQF Level 2 · 16 Credits · 13 Days

COURSE OVERVIEW

This course equips learners with the knowledge and skills required to operate a milling tandem in a sugar processing plant. It covers the principles of cane preparation, milling theory, and the operation of milling units to ensure optimal extraction of juice. Learners will also understand the importance of safety, quality control, and maintenance in the milling process.

Category	Agriculture and Nature Conservation
Subfield	Secondary Agriculture
Unit Standard	114306
Accreditation	SAQA Accredited · NQF Level 2 · 16 Credits
Duration	13 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply the principles of cane preparation and milling theory to optimize juice extraction.
- Demonstrate the correct startup, operation, and shutdown procedures for a milling tandem.
- Analyze milling performance data to identify and rectify operational inefficiencies.
- Implement safety protocols and hazard control measures in the milling area.
- Evaluate the impact of mill settings and maintenance on extraction efficiency.
- Design a basic troubleshooting plan for common milling tandem issues.

WHO SHOULD ATTEND

- This course is designed for process operators, mill attendants, and technicians working in sugar milling operations, as well as supervisors seeking to deepen their understanding of tandem milling.

COURSE OUTLINE

Day 1: Introduction to Sugar Processing and Milling Tandem

- Overview of sugar processing from cane to raw sugar
- Introduction to milling tandem: definition and purpose
- Key components: crusher, mills, intermediate carriers, drives
- Safety hazards and personal protective equipment (PPE)
- Basic milling terminology: extraction, imbibition, bagasse

Day 2: Cane Preparation and Feeding Systems

- Cane unloading and conveying systems
- Cane knives: types and settings
- Shredders: operation and maintenance
- Feeding to the first mill: chutes, rollers
- Preparation index and its measurement
- Troubleshooting common preparation issues

Day 3: Mill Configuration and Roller Settings

- Mill types: conventional, high-extraction, etc.
- Roller dimensions and materials
- Setting parameters: feed opening, discharge opening
- Roller grooving patterns and wear
- Hydraulic loading systems
- Impact of roller speed and ratio

Day 4: Imbibition and Juice Extraction Principles

- Imbibition theory: diffusion and washing
- Imbibition water quality and temperature
- Compound imbibition system
- Juice extraction calculation: first mill extraction, overall extraction
- Bagasse moisture and its control
- Optimization of imbibition rate

Day 5: Mill Drives and Power Management

- Steam engines vs. electric motors vs. hydraulic drives
- Gearboxes, couplings, and clutches
- Power consumption monitoring
- Variable speed drives and control
- Lubrication systems
- Troubleshooting drive issues

Day 6: Intermediate Carriers and Bagasse Handling

- Carrier types: slat, chain, belt
- Carrier alignment and tensioning
- Bagasse return systems
- Bagasse as fuel for boilers
- Bagasse storage and disposal
- Fire hazards and prevention

Day 7: Milling Station Control and Automation

- Control loops: feed rate, roller speed, imbibition flow
- Sensors and instrumentation
- SCADA interface and data logging
- Alarm management and emergency stops
- Standard operating procedures (SOPs) for control
- Shift handover practices

Day 8: Maintenance Strategies for Milling Equipment

- Maintenance types: reactive, preventive, predictive
- Wear parts: rollers, bearings, scraper plates
- Lubrication schedules and grease types
- Hydraulic system maintenance
- Condition monitoring: vibration, temperature
- Shutdown planning and safety

Day 9: Troubleshooting Common Milling Problems

- Choking causes: preparation, feeding, settings
- Roller slipping: causes and remedies
- Low extraction: analysis and adjustments
- Mechanical failures: breakages, jamming
- Root cause analysis (RCA) tools
- Case studies from industry

Day 10: Quality Control and Sampling in Milling

- Sampling techniques: primary juice, mixed juice, bagasse
- Laboratory analysis: polarimetry, refractometry
- Moisture determination methods
- Data recording and reporting
- Using quality data for process adjustments
- Quality assurance standards

Day 11: Environmental and Safety Compliance

- Environmental permits and compliance
- Effluent treatment and disposal
- Dust and noise control
- Personal safety: lockout/tagout, confined spaces
- Risk assessment methodology
- Incident reporting and investigation

Day 12: Advanced Milling Techniques and Innovations

- Comparison of milling vs. diffusion
- High-pressure mills and dewatering
- Energy-saving innovations: variable speed, heat recovery
- Advanced roller materials and coatings
- Automation trends: AI and machine learning
- Industry best practices and benchmarking

Day 13: Integration, Review, and Assessment

- Comprehensive milling tandem simulation
- Review of critical parameters and troubleshooting
- Written and practical assessment
- Feedback and course evaluation
- Action planning for workplace application
- Certificate of competence

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 **16 NQF credits** at **NQF Level 2**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 43,500.00	R 43,500.00
1	In-House	R 56,600.00	R 56,600.00
1	On-Campus (Pretoria)	R 65,200.00	R 65,200.00

UPCOMING SESSIONS

Start	End	Method	Venue
10 Aug 2026	26 Aug 2026	On-Campus	Dubai, UAE
11 Aug 2026	27 Aug 2026	On-Campus	Pretoria, South Africa
12 Aug 2026	28 Aug 2026	On-Campus	Abu Dhabi, UAE
13 Aug 2026	31 Aug 2026	On-Campus	Durban, South Africa
13 Aug 2026	31 Aug 2026	On-Campus	Mauritius
14 Aug 2026	01 Sep 2026	On-Campus	Cape Town, South Africa
17 Aug 2026	02 Sep 2026	On-Campus	Pretoria, South Africa
18 Aug 2026	03 Sep 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, open the page for this course (Unit Standard 114306) 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