



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

Polishing Plant Operation And Control Training

Agriculture and Nature Conservation / Secondary Agriculture

Unit Standard 115979 · NQF Level 3 · 12 Credits · 9 Days

COURSE OVERVIEW

This course equips learners with the knowledge and skills to effectively operate and control polishing plants in the mining and metallurgical sectors. Participants will gain practical competence in monitoring plant processes, optimizing performance, and ensuring compliance with safety and quality standards. The training is designed to enhance operational efficiency and contribute to the productive management of mineral processing operations.

Category	Agriculture and Nature Conservation
Subfield	Secondary Agriculture
Unit Standard	115979
Accreditation	SAQA Accredited · NQF Level 3 · 12 Credits
Duration	9 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Demonstrate understanding of polishing plant processes and the principles of operation and control.
- Apply operational procedures to start up, operate, and shut down polishing plant equipment safely and efficiently.
- Monitor and control plant parameters to optimize production quality and throughput.
- Analyze plant performance data to identify deviations and implement corrective actions.
- Implement safety and environmental procedures in accordance with relevant legislation and company policies.
- Evaluate plant output to ensure compliance with product specifications and quality standards.

WHO SHOULD ATTEND

- This course is intended for plant operators, process controllers, and supervisors working in polishing plants within the mining, metallurgical, or related industries.
- It is also suitable for individuals seeking to advance their skills in mineral processing operations.

COURSE OUTLINE

Day 1: Introduction to Polishing Plant Operations

- Overview of water treatment processes and polishing plant position
- Key components: filters, membranes, chemical dosing systems
- Basic principles of filtration and ion exchange
- Safety, health, and environmental regulations (e.g., OHS Act, SANS 241)
- Introduction to process flow diagrams and P&IDs;
- Quality parameters: turbidity, TDS, pH, conductivity
- Plant documentation and record-keeping requirements

Day 2: Water Chemistry and Quality Parameters

- Physical, chemical, and microbiological parameters
- Sampling techniques, frequency, and chain of custody
- On-site testing: pH, conductivity, turbidity, chlorine residual
- Coagulation, flocculation, and precipitation chemistry
- Scaling and corrosion indices (LSI, RSI)
- Interpreting water quality reports and trending data
- Corrective actions for out-of-spec parameters

Day 3: Polishing Plant Equipment and Instrumentation

- Multimedia filters, cartridge filters, and membrane systems (UF, RO)
- Chemical dosing pumps and mixers
- Flow meters, pressure gauges, level transmitters
- Online analyzers: pH, conductivity, turbidity, TOC
- Calibration procedures and frequency
- Common faults: fouling, scaling, membrane damage
- Preventive maintenance schedules

Day 4: Process Control and Automation Fundamentals

- Open vs. closed loop control
- PID controller principles and tuning
- SCADA/DCS overview: HMI, trends, alarms
- Control of flow, pressure, and chemical dosing
- Setpoint adjustments for quality targets
- Alarm management and response procedures
- Manual override and fail-safe modes

Day 5: Polishing Plant Start-Up and Shutdown Procedures

- Pre-start-up checks: valves, pumps, instrumentation
- Step-by-step start-up sequence for filters and membranes
- Normal shutdown and emergency shutdown procedures
- LOTO procedures and permit-to-work systems
- Flushing, cleaning, and preservation during shutdown
- Logging and reporting requirements
- Case studies: start-up/shutdown incidents

Day 6: Monitoring, Sampling, and Data Analysis

- Monitoring parameters: flow, pressure, differential pressure, quality
- Sampling locations and frequency optimization
- Data logging and trend analysis using spreadsheets
- Statistical process control (SPC) basics
- Chemical dosing optimization using data
- Performance indicators: recovery, rejection, specific flux
- Reporting and corrective action plans

Day 7: Troubleshooting and Problem Solving

- Systematic troubleshooting: fishbone, 5 whys
- Common issues: low flow, high differential pressure, poor quality
- Membrane fouling types and cleaning strategies
- Chemical dosing problems: over/under dosing
- Instrumentation drift and calibration errors
- Emergency response to critical failures
- Case studies and group problem-solving exercises

Day 8: Advanced Control and Optimization Techniques

- Feed-forward control for chemical dosing
- Cascade control for flow and pressure
- Energy optimization: pump scheduling, variable speed drives
- Chemical consumption reduction strategies
- Key performance indicators (KPIs): uptime, quality, cost
- Benchmarking against industry standards
- Introduction to model predictive control (MPC)

Day 9: Integration, Compliance, and Final Assessment

- Integrated plant operation: from intake to final product
- Regulatory compliance: SANS 241, DWAF guidelines
- Audit preparation: documentation, records, procedures
- Environmental management: waste streams, brine disposal
- Practical assessment: start-up, monitoring, troubleshooting
- Review of key concepts and Q&A;
- Course evaluation and certification

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 3**.

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
10 Aug 2026	20 Aug 2026	On-Campus	Cape Town, South Africa
11 Aug 2026	21 Aug 2026	On-Campus	Dubai, UAE
12 Aug 2026	24 Aug 2026	On-Campus	Pretoria, South Africa
13 Aug 2026	25 Aug 2026	On-Campus	Abu Dhabi, UAE
14 Aug 2026	26 Aug 2026	On-Campus	Durban, South Africa
14 Aug 2026	26 Aug 2026	On-Campus	Mauritius
17 Aug 2026	27 Aug 2026	On-Campus	Harare, Zimbabwe
17 Aug 2026	27 Aug 2026	On-Campus	Dubai, 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 115979) 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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