



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

Mechanical and Electrical Plant Operation in Water Treatment

Physical Planning and Construction / Civil Engineering Construction

Unit Standard 255474 · NQF Level 3 · 6 Credits · 3 Days

COURSE OVERVIEW

This course equips learners with the competencies required to operate mechanical and electrical plant and equipment safely and efficiently in water and wastewater treatment environments. It covers principles of operation, routine maintenance, and compliance with health and safety regulations.

Category	Physical Planning and Construction
Subfield	Civil Engineering Construction
Unit Standard	255474
Accreditation	SAQA Accredited · NQF Level 3 · 6 Credits
Duration	3 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply principles of mechanical and electrical plant operation in water and wastewater treatment processes.
- Demonstrate safe operating procedures for pumps, valves, motors, and control systems.
- Analyze plant performance data to identify operational deviations and implement corrective actions.
- Implement routine maintenance schedules and procedures for mechanical and electrical equipment.
- Evaluate the efficiency of plant operations and propose improvements to optimize performance.
- Comply with relevant health, safety, and environmental legislation and standards.

WHO SHOULD ATTEND

- This course is designed for process controllers, plant operators, and maintenance technicians working in water and wastewater treatment facilities who need to operate and oversee mechanical and electrical equipment.

COURSE OUTLINE

Day 1: Fundamentals of Mechanical and Electrical Systems in Water Treatment

- Overview of water treatment processes and plant layout
- Mechanical systems: pumps (centrifugal, positive displacement), valves, and pipework
- Electrical systems: motors, starters, and switchgear
- Electrical safety: lockout/tagout, earthing, and protection devices
- Introduction to instrumentation: flow, pressure, level, and quality sensors
- Basic control loops and SCADA overview

Day 2: Operation, Monitoring, and Maintenance of Plant Equipment

- Start-up and shutdown procedures for pumps, motors, and blowers
- Monitoring parameters: flow rate, pressure, temperature, vibration, and current
- Routine maintenance: lubrication, alignment, belt tension, and filter cleaning
- Common faults: cavitation, overheating, seal leaks, and electrical trips
- Troubleshooting methodology for mechanical and electrical issues
- Introduction to condition monitoring and predictive maintenance

Day 3: Integration, Safety, and Practical Application

- Process control strategies: feedback, feedforward, and cascade control
- Optimisation of energy efficiency in pumping and aeration systems
- Emergency procedures and contingency planning
- Health, safety, and environmental compliance (OHS Act, SANS standards)
- Shift handover and operational reporting
- Review and assessment preparation

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 **6 NQF credits** at **NQF Level 3**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 17,900.00	R 17,900.00
1	In-House	R 23,300.00	R 23,300.00
1	On-Campus (Pretoria)	R 26,800.00	R 26,800.00

UPCOMING SESSIONS

Start	End	Method	Venue
10 Aug 2026	12 Aug 2026	On-Campus	Abu Dhabi, UAE
10 Aug 2026	12 Aug 2026	On-Campus	Cape Town, South Africa
11 Aug 2026	13 Aug 2026	On-Campus	Durban, South Africa
11 Aug 2026	13 Aug 2026	On-Campus	Dubai, UAE
12 Aug 2026	14 Aug 2026	On-Campus	Pretoria, South Africa
12 Aug 2026	14 Aug 2026	On-Campus	Mauritius
17 Aug 2026	19 Aug 2026	On-Campus	Durban, South Africa
17 Aug 2026	19 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 255474) 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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