



Accredited Africa Training Institute for Capacity Development

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COURSE BROCHURE

Process Plant Operations

Custom Courses / Engineering & Technical Maintenance

Unit Standard AATICD-0220 · NQF Level 5 · 10 Credits · 5 Days

COURSE OVERVIEW

This course equips learners with the practical skills and knowledge required to operate and monitor process plants efficiently and safely. It covers key aspects such as start-up, shutdown, routine operations, and troubleshooting within a production environment, aligned with industry standards.

Category	Custom Courses
Subfield	Engineering & Technical Maintenance
Unit Standard	AATICD-0220
Accreditation	SAQA Accredited · NQF Level 5 · 10 Credits
Duration	5 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply start-up and shutdown procedures for process plant equipment in accordance with standard operating procedures.
- Monitor and control process variables such as temperature, pressure, and flow to maintain optimal production.
- Identify and respond to abnormal plant conditions, including equipment malfunctions and process upsets.
- Demonstrate safe working practices and adherence to health, safety, and environmental regulations.
- Record and report operational data accurately to support production and maintenance planning.
- Communicate effectively within a team to coordinate plant operations and handovers.

WHO SHOULD ATTEND

- This course is designed for operators, technicians, and team leaders working in process plant environments who need to enhance their operational competence and ensure compliance with safety and quality protocols.

COURSE OUTLINE

Day 1: Introduction to Process Plant Operations and Safety

- Overview of process plant operations and typical industries (chemical, petrochemical, power generation)
- Plant equipment: pumps, compressors, heat exchangers, valves, vessels
- Safety culture: HIRA (Hazard Identification and Risk Assessment), PPE, permit-to-work systems
- Introduction to process diagrams: PFDs and P&IDs;
- Fundamentals of process control: sensors, controllers, final control elements
- Basic process variables: temperature, pressure, flow, level

Day 2: Plant Equipment and Systems Operation

- Pump operation: centrifugal and positive displacement, cavitation, priming
- Compressor operation: reciprocating and centrifugal, surge control
- Heat exchanger operation: shell-and-tube, plate, fouling effects
- Valve types and their use: gate, globe, ball, butterfly, control valves
- Vessel operation: separators, reactors, storage tanks, level control
- Auxiliary systems: cooling water system, steam system, instrument air

Day 3: Process Control and Instrumentation

- Control loop components: transmitter, controller, final control element
- PID controller tuning: proportional, integral, derivative actions
- Instrumentation: pressure, temperature, flow, level transmitters
- Alarm management: priority, suppression, response
- Emergency shutdown systems (ESD) and safety instrumented systems (SIS)
- Introduction to DCS/SCADA: operator interface, trends, logging

Day 4: Plant Start-up, Shutdown, and Normal Operations

- Pre-start-up safety reviews (PSSR) and line-by-line checks
- Start-up sequences: inerting, purging, heating, pressurizing
- Normal operations: monitoring trends, adjusting control loops, sampling
- Shutdown procedures: depressurizing, draining, isolating, lockout/tagout
- Process upset response: high pressure, high temperature, leaks, trips
- Shift handover: communication, logbook, outstanding issues
- Energy optimization and waste minimization

Day 5: Troubleshooting, Maintenance, and Practical Integration

- Troubleshooting methodology: symptoms, possible causes, corrective actions
- Common problems: pump cavitation, heat exchanger fouling, control valve sticking
- Maintenance coordination: work orders, permits, isolations
- Root cause analysis: 5 Whys, fishbone diagram
- Simulated plant operation scenario: start-up, normal operation, upset, shutdown
- 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 **10 NQF credits** at **NQF Level 5**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 24,200.00	R 24,200.00
1	In-House	R 31,400.00	R 31,400.00
1	On-Campus (Pretoria)	R 36,200.00	R 36,200.00

UPCOMING SESSIONS

Start	End	Method	Venue
10 Aug 2026	14 Aug 2026	On-Campus	Durban, South Africa
10 Aug 2026	14 Aug 2026	On-Campus	Abu Dhabi, UAE
17 Aug 2026	21 Aug 2026	On-Campus	Harare, Zimbabwe
17 Aug 2026	21 Aug 2026	On-Campus	Shenzhen, China
24 Aug 2026	28 Aug 2026	On-Campus	Bangkok, Thailand
24 Aug 2026	28 Aug 2026	On-Campus	Victoria Falls, Zimbabwe
31 Aug 2026	04 Sep 2026	On-Campus	Lusaka, Zambia
31 Aug 2026	04 Sep 2026	On-Campus	London, UK

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 AATICD-0220) 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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