



## Accredited Africa Training Institute for Capacity Development

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### COURSE BROCHURE

# Wastewater Reticulation System Operation And Maintenance Training

Physical Planning and Construction / Civil Engineering Construction

Unit Standard 115907 · NQF Level 3 · 15 Credits · 12 Days

## COURSE OVERVIEW

This course equips learners with the knowledge and skills to operate and maintain wastewater reticulation systems effectively. It covers the principles of wastewater collection, system components, and routine maintenance procedures to ensure environmental compliance and system reliability.

|                 |                                            |
|-----------------|--------------------------------------------|
| Category        | Physical Planning and Construction         |
| Subfield        | Civil Engineering Construction             |
| Unit Standard   | 115907                                     |
| Accreditation   | SAQA Accredited · NQF Level 3 · 15 Credits |
| Duration        | 12 days                                    |
| Training Method | Online, On-Campus, In-House                |
| Certificate     | Issued via AATICD LMS – verifiable online  |

## LEARNING OUTCOMES

- Apply principles of wastewater reticulation system design and operation to ensure efficient flow and treatment.
- Analyze system components and identify potential faults or blockages in the reticulation network.
- Evaluate maintenance schedules and procedures to optimize system performance and longevity.
- Demonstrate safe work practices in accordance with occupational health and safety regulations.
- Implement corrective actions for common reticulation system malfunctions.
- Monitor system performance using relevant instrumentation and interpret data for reporting.

## WHO SHOULD ATTEND

- This course is designed for wastewater treatment plant operators, maintenance technicians, and municipal infrastructure staff responsible for the operation and upkeep of wastewater reticulation systems.

## COURSE OUTLINE

### Day 1: Introduction to Wastewater Reticulation Systems

- Overview of wastewater reticulation systems.
- Components: pipes, manholes, pumps, valves.
- South African water regulations (SANS, DWS guidelines).
- Health and safety induction (HIRA, PPE).
- Environmental impact and spill prevention.
- Basic hydraulics and flow principles.

### Day 2: System Design and Layout Principles

- Reading reticulation plans and as-built drawings.
- Pipe materials (PVC, HDPE, concrete, ductile iron).
- Design criteria: flow rates, gradients, pipe sizing.
- Gravity vs. pressurised systems.
- Manhole types and spacing.
- Pump station components and siting.

### Day 3: Safety Procedures and Risk Management

- Confined space entry procedures (SANS 10089).
- Risk assessment methods (JSA, HIRA).
- PPE selection and inspection.
- Gas detection and ventilation.
- Rescue plans and equipment.
- Lockout/tagout (LOTO) for pumps and valves.

### Day 4: Tools, Equipment, and Materials

- Hand tools: spanners, cutters, wrenches.
- Power tools: saws, drills, compactors.
- Pipe jointing methods (solvent weld, electrofusion, flanged).
- Pipe cutting and beveling tools.
- CCTV inspection equipment.
- Maintenance of tools and equipment records.

### Day 5: Inspection and Condition Assessment

- Visual inspection of manholes, pipes, and structures.
- CCTV inspection techniques and interpretation.
- Defect coding (e.g., WRC defect codes).
- Flow monitoring and smoke testing.
- Dye testing for cross-connections.
- Inspection report writing.

### Day 6: Preventive Maintenance Practices

- Preventive maintenance planning.
- Cleaning methods: jetting, rodding, pigging.
- Valve maintenance: gate, butterfly, non-return.
- Pump maintenance: seals, bearings, impellers.
- Greasing and lubrication schedules.

- Maintenance logbooks and CMMS.

#### **Day 7: Corrective Maintenance and Repairs**

- Fault diagnosis: blockages, leaks, breaks.
- Pipe repair methods: clamps, sleeves, replacement.
- Manhole repair and rehabilitation.
- Emergency response procedures.
- Temporary bypass pumping.
- Disinfection after repairs.

#### **Day 8: Pump Stations and Pressure Systems**

- Pump types: centrifugal, submersible, positive displacement.
- Pump curves and performance.
- Control panels, level sensors, and alarms.
- SCADA monitoring and alarms.
- Pump station cleaning and debris removal.
- Standby power and generator operation.

#### **Day 9: Valve and Appurtenance Maintenance**

- Valve types: gate, globe, butterfly, check.
- Air release and vacuum valves.
- Washout and scour valves.
- Fire hydrants and standpipes.
- Valve exercising programs.
- Valve repair: gland packing, seat replacement.

#### **Day 10: Environmental Compliance and Spill Management**

- National Water Act and environmental authorisations.
- Spill containment kits and procedures.
- Odour control: chemical dosing, ventilation.
- Corrosion protection: coatings, cathodic protection.
- Waste management (sludge, debris).
- Incident reporting and corrective actions.

#### **Day 11: Customer Service and Community Relations**

- Customer communication protocols.
- Handling sewer blockages and overflows.
- Public notification during planned works.
- Working with municipalities and contractors.
- Water conservation awareness.
- Health and hygiene education.

#### **Day 12: Integration, Assessment, and Certification**

- Review of key concepts.
- Practical assessment: pipe repair, pump maintenance, safety.
- Written assessment (knowledge test).
- Portfolio of evidence compilation.
- Feedback and improvement plans.
- Certification process and next steps.

## 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 **15 NQF credits** at **NQF Level 3**.

## PRICING (PER DELEGATE, EX-VAT)

| Delegates | Training Method      | Price per Delegate | Total       |
|-----------|----------------------|--------------------|-------------|
| 1         | Online               | R 41,000.00        | R 41,000.00 |
| 1         | In-House             | R 53,300.00        | R 53,300.00 |
| 1         | On-Campus (Pretoria) | R 61,500.00        | R 61,500.00 |

## UPCOMING SESSIONS

| Start       | End         | Method    | Venue                      |
|-------------|-------------|-----------|----------------------------|
| 31 Jul 2026 | 17 Aug 2026 | On-Campus | Lagos, Nigeria             |
| 03 Aug 2026 | 18 Aug 2026 | On-Campus | Mauritius                  |
| 04 Aug 2026 | 19 Aug 2026 | On-Campus | Cape Town, South Africa    |
| 05 Aug 2026 | 20 Aug 2026 | On-Campus | Dubai, UAE                 |
| 06 Aug 2026 | 21 Aug 2026 | On-Campus | Pretoria, South Africa     |
| 06 Aug 2026 | 21 Aug 2026 | On-Campus | Lagos, Nigeria             |
| 07 Aug 2026 | 24 Aug 2026 | On-Campus | Johannesburg, South Africa |
| 10 Aug 2026 | 25 Aug 2026 | On-Campus | Cape Town, South Africa    |

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 115907) 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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