



## 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

# Instrumentation Calibration

Custom Courses / Instrumentation & Automation

Unit Standard AATICD-0229 · NQF Level 5 · 10 Credits · 5 Days

## COURSE OVERVIEW

This course equips learners with the knowledge and skills to perform instrumentation calibration in industrial and laboratory settings. Participants will understand calibration principles, procedures, and standards to ensure measurement accuracy and compliance with quality systems.

|                 |                                            |
|-----------------|--------------------------------------------|
| Category        | Custom Courses                             |
| Subfield        | Instrumentation & Automation               |
| Unit Standard   | AATICD-0229                                |
| 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

- Explain the principles of measurement and calibration traceability.
- Apply calibration procedures to various instruments including pressure, temperature, and flow devices.
- Analyze calibration results to determine instrument accuracy and conformance.
- Evaluate calibration intervals and uncertainty of measurement.
- Demonstrate correct use of calibration standards and equipment.
- Implement corrective actions based on calibration findings.

## WHO SHOULD ATTEND

- Technicians, engineers, and quality assurance personnel responsible for calibrating instruments in manufacturing, process control, or testing environments.

## COURSE OUTLINE

### Day 1: Introduction to Instrumentation and Calibration Principles

- Overview of instrumentation in industrial processes
- What is calibration? Purpose and benefits
- Key terms: accuracy, precision, resolution, range, span
- Units of measurement and SI system
- Traceability chain and national/international standards
- Calibration intervals and factors affecting frequency
- Safety precautions in calibration activities

### Day 2: Calibration Standards and Measurement Uncertainty

- Types of standards: primary, secondary, working, reference
- Calibration certificates and their interpretation
- Introduction to measurement uncertainty
- Sources of uncertainty: random and systematic errors
- Calculating combined and expanded uncertainty
- Uncertainty budgets and reporting
- Practical examples of uncertainty analysis

### Day 3: Calibration of Pressure and Temperature Instruments

- Pressure calibration principles: gauge, absolute, differential
- Deadweight tester operation and calculations
- Temperature calibration: RTDs, thermocouples, thermistors
- Dry-block and bath calibrators
- Calibration procedures step-by-step
- Recording data and calculating deviations
- Introduction to ISO 17025 requirements

### Day 4: Calibration of Flow and Level Instruments

- Flow measurement principles: differential pressure, magnetic, ultrasonic
- Calibration methods: volumetric, gravimetric, master meter
- Level measurement: hydrostatic, radar, ultrasonic
- Wet leg and dry leg calibration for differential pressure transmitters
- Temperature and pressure compensation
- Calibration software tools
- Troubleshooting common calibration issues

### Day 5: Advanced Calibration, Documentation, and Practical Integration

- Calibration of analytical instruments: pH meters, conductivity meters
- Loop calibration: transmitter to controller
- Smart transmitter configuration and calibration
- Calibration management software and databases
- Creating calibration certificates and reports
- Calibration scheduling and asset management
- Review of course 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](http://www.aaticd.co.za), open the page for this course (Unit Standard AATICD-0229) 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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