



ENGINEERING AND TECHNICAL TRAINING

Process Instrumentation and Control Systems Fundamentals

3 day course

Classroom, online or in-house

Course overview

A three day foundation in the field instruments and control principles that every process plant depends on. Delegates work through the selection and specification of instruments for flow, level, pressure and temperature, and the service conditions that make one technology right and another unreliable. Control valve types, sizing and actuator selection are covered as their own subject, since the valve is where a control strategy meets the process. The feedback loop is taught from its components up, delegates learn to read piping and instrumentation diagrams properly, and calibration and commissioning procedures are practised on common field instruments. The course closes with an introduction to control system architectures, and is structured for technicians and engineers entering instrumentation roles in mining, oil and gas and power.

What you will learn

- Identify and specify common field instruments for flow, level, pressure and temperature
- Explain control valve types, sizing and actuator selection principles
- Describe the components and operation of a basic feedback control loop
- Interpret piping and instrumentation diagrams
- Apply calibration procedures to common field instruments
- Diagnose field faults by isolating signal, instrument and process causes
- Apply instrument selection and installation practice for hazardous areas

Who should attend

- Instrumentation technicians
- Control engineers
- Process engineers
- Graduate engineers
- Maintenance technicians new to instrumentation

Course outline

- 01 Field instrumentation for flow, level, pressure and temperature
- 02 Analytical and specialised measurement
- 03 Control valve types, sizing and actuators
- 04 Feedback control loop fundamentals
- 05 Reading and interpreting piping and instrumentation diagrams
- 06 Instrument calibration and commissioning
- 07 Fault finding on field instrumentation
- 08 Hazardous area installation and control system architectures

Upcoming dates



Dates	Venue	Format	Fee per delegate
2 to 4 November 2026	Casablanca, Morocco	Classroom	USD 995
11 to 13 November 2026	Addis Ababa, Ethiopia	Classroom	USD 995
14 to 16 December 2026	Maputo, Mozambique	Classroom	USD 995
13 to 15 January 2027	Online	Online	R6,500

Fees and how to register

This 3 day course is **R6,500** per delegate online, **R14,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 995** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit www.afrisciencegroup.com, email info@afriScience.co.za, or WhatsApp us on **+27 63 479 1136**.

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