



ENGINEERING AND TECHNICAL TRAINING

Design Criteria in Instrumentation Engineering

5 day course

Classroom, online or in-house

Course overview

Instrument selection and specification decide whether a plant can be measured, controlled and protected, and mistakes at this stage are expensive to correct later. This course covers the criteria behind those decisions. Delegates work through measurement principles and selection for flow, level, pressure and temperature, final control element sizing, signal transmission and wiring practice, hazardous area classification and protection concepts, and the documentation set that carries an instrument through from specification to commissioning. Functional safety receives its own treatment, including the reasoning behind safety integrity levels and what a rated loop actually requires in practice.

What you will learn

- Select measurement technology for flow, level, pressure and temperature against service conditions
- Specify final control elements and size them correctly
- Apply signal transmission, wiring and earthing practice
- Classify hazardous areas and select appropriate protection concepts
- Produce the instrument documentation set from specification to commissioning
- Explain safety integrity levels and what a rated loop requires
- Review an instrument specification critically before it is issued

Who should attend

- Instrumentation and control engineers
- Project and design engineers
- Maintenance engineers and technicians
- Commissioning engineers
- Technical staff reviewing instrument specifications

Course outline

- 01 Measurement principles and technology selection for the four main variables
- 02 Service conditions and the effect on instrument choice
- 03 Final control elements and sizing
- 04 Signal transmission, wiring, earthing and noise
- 05 Hazardous area classification and protection concepts
- 06 Instrument documentation from datasheet to loop drawing
- 07 Functional safety and safety integrity levels
- 08 Reviewing a specification before it is issued

Upcoming dates

Dates	Venue	Format	Fee per delegate
16 to 20 November 2026	Online	Online	R8,500
1 to 5 February 2027	Kigali, Rwanda	Classroom	USD 1,325
15 to 19 March 2027	Dar es Salaam, Tanzania	Classroom	USD 1,325

Fees and how to register

This 5 day course is **R8,500** per delegate online, **R19,950** in the classroom in South Africa, Botswana, Namibia,



Lesotho and Eswatini, and **USD 1,325** 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**.

AfriScience Group | +27 61 536 6531 | info@afriscience.co.za | Pretoria, Gauteng, South Africa