

**POWER AND ELECTRICAL TRAINING**

Power System Protection and Reliability

10 day course

Classroom, online or in-house

Course overview

An extended programme on protecting a power system and keeping it available. Delegates work through fault analysis and short circuit calculation, protection philosophy and grading, the full range of protection functions from overcurrent through distance to differential, and the coordination study that ties them together. The second half moves to reliability: failure modes in primary plant, protection maloperation and its causes, testing and commissioning practice, and the analysis of actual system events. Delegates work through real fault records and disturbance recordings, and finish able to build and defend a coordination study and to investigate a protection operation after the event.

What you will learn

- Calculate short circuit currents and analyse system faults
- Apply protection philosophy, selectivity and grading across a network
- Specify overcurrent, earth fault, distance, differential and busbar protection
- Build and verify a protection coordination study
- Analyse disturbance records and investigate a protection operation
- Identify the causes of protection maloperation and failure to operate
- Plan testing, commissioning and periodic verification
- Assess and improve system reliability and availability

Who should attend

- Protection and control engineers
- Electrical engineers in utilities and heavy industry
- Substation and network operations staff
- Testing and commissioning engineers
- Technical managers responsible for network availability

Course outline

- 01 Power system faults and short circuit calculation
- 02 Protection philosophy, selectivity, sensitivity and speed
- 03 Overcurrent and earth fault protection and grading
- 04 Distance protection and its application
- 05 Differential and busbar protection
- 06 Transformer, generator and motor protection
- 07 Coordination studies and their verification
- 08 Testing, commissioning and periodic verification
- 09 Disturbance record analysis and event investigation
- 10 Protection maloperation: causes and prevention
- 11 Reliability, availability and the improvement of both

Upcoming dates



Dates	Venue	Format	Fee per delegate
28 September to 9 October 2026	Gaborone, Botswana	Classroom	R32,450
19 to 30 October 2026	Online	Online	R13,500
14 to 25 December 2026	Kigali, Rwanda	Classroom	USD 2,150
8 to 19 March 2027	Nairobi, Kenya	Classroom	USD 2,150

Fees and how to register

This 10 day course is **R13,500** per delegate online, **R32,450** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 2,150** 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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