

**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
2 to 11 September 2026	Mbabane, Eswatini	Classroom	R11,995
16 to 25 October 2026	London, United Kingdom	Classroom	R11,995
6 to 15 November 2026	Pretoria, South Africa	Classroom	R11,995
11 to 20 November 2026	Cape Town, South Africa	Classroom	R11,995

Fees and how to register

Online **from R6,500** per delegate, classroom **from R11,995** per delegate, 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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