POWER AND ELECTRICAL TRAINING

Power System Blackouts: Causes and Prevention

3 day course Classroom, online or in-house

Course overview

Major blackouts follow a recognisable pattern: an initiating event the system should have survived, followed by cascading failures that protection and operators could not arrest in time. This course studies that pattern. Delegates work through documented blackouts from several systems, reconstructing the sequence in each and identifying the point at which the outcome became inevitable. The technical material covers cascading overload, voltage collapse, frequency instability and the protection maloperation that frequently accelerates a cascade. Defence plans, islanding and load shedding are examined as the measures that limit extent, and the course closes on black start capability and restoration planning.

What you will learn

- Reconstruct the sequence of a documented blackout
- Identify the point at which an outcome became inevitable
- Explain cascading overload and voltage collapse
- Recognise how protection maloperation accelerates a cascade
- Design defence plans, islanding and load shedding to limit extent
- Assess black start capability against a realistic scenario
- Build a restoration plan and test it

Who should attend

- System operations and control room engineers
- Utility planning and protection engineers
- Generation operations staff
- Regulators and system security authorities
- Consultants advising on system security

Course outline

01 The recognisable pattern behind major blackouts
02 Case studies and sequence reconstruction
03 Cascading overload
04 Voltage collapse
05 Frequency instability
06 Protection maloperation in a cascade
07 Defence plans, islanding and load shedding
08 Black start and restoration planning

Upcoming dates

Dates	Venue	Format	Fee per delegate
4 to 6 November 2026	Accra, Ghana	Classroom	USD 995
9 to 11 November 2026	Durban, South Africa	Classroom	R14,950
10 to 12 February 2027	Online	Online	R6,500
22 to 24 February 2027	Nairobi, Kenya	Classroom	USD 995

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**.

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