



POWER AND ELECTRICAL TRAINING

Earthing, Bonding, Lightning and Surge Protection

5 day course

Classroom, online or in-house

Course overview

Earthing is the system that does nothing visible until a fault or a strike, and then determines whether anybody is hurt and whether the electronics survive. This course covers designing it. Delegates work through earthing system types and the fault current path, earth electrode design and soil resistivity measurement, step and touch potential calculation, and the bonding that keeps equipment at the same potential during an event. Lightning protection covers risk assessment, air termination and down conductor design. Surge protection is covered as a coordinated set of devices across the installation rather than a single unit, and the course closes on testing, measurement and the periodic verification an earthing system needs.

What you will learn

- Describe earthing system types and the fault current path in each
- Measure soil resistivity and design an earth electrode system
- Calculate step and touch potentials and design to limit them
- Specify bonding to hold equipment at a common potential
- Carry out a lightning risk assessment and design protection
- Coordinate surge protective devices across an installation
- Test, measure and periodically verify an earthing system

Who should attend

- Electrical design and installation engineers
- Substation and telecommunications engineers
- Electrical safety officers
- Consulting engineers
- Maintenance staff responsible for earthing systems

Course outline

- 01 Earthing system types and the fault current path
- 02 Soil resistivity measurement
- 03 Earth electrode design
- 04 Step and touch potential
- 05 Bonding and equipotential zones
- 06 Lightning risk assessment and protection design
- 07 Coordinated surge protection across an installation
- 08 Testing, measurement and periodic verification

Upcoming dates

Dates	Venue	Format	Fee per delegate
12 to 16 October 2026	Accra, Ghana	Classroom	USD 1,325
9 to 13 November 2026	Mbabane, Eswatini	Classroom	R19,950
4 to 8 January 2027	Dar es Salaam, Tanzania	Classroom	USD 1,325
18 to 22 January 2027	Pretoria, South Africa	Classroom	R19,950



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**.

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