



POWER AND ELECTRICAL TRAINING

Substation Automation Systems

5 day course

Classroom, online or in-house

Course overview

Modern substation automation replaces copper with communications, which changes how a station is engineered, tested and troubleshot. This course covers that shift. Delegates work through the architecture of a digital substation, intelligent electronic devices and their roles, and station and process bus concepts. The IEC 61850 standard is covered practically, including the data model, configuration files and the engineering workflow that produces them. Testing a scheme where the trip path is a message rather than a wire receives detailed attention, alongside time synchronisation and its consequences. The course closes on interoperability, migration from conventional schemes, and troubleshooting a communication based scheme.

What you will learn

- Describe digital substation architecture and its layers
- Explain the role of intelligent electronic devices in a scheme
- Apply the IEC 61850 data model and configuration workflow
- Distinguish station bus and process bus and their implications
- Test a scheme whose trip path is a message rather than a wire
- Implement time synchronisation and understand its failure effects
- Plan migration from a conventional scheme and troubleshoot the result

Who should attend

- Protection, control and automation engineers
- Substation design and commissioning engineers
- Utility technical staff planning modernisation
- Testing engineers and technicians
- Consultants specifying substation schemes

Course outline

- 01 From copper to communications
- 02 Digital substation architecture
- 03 Intelligent electronic devices and their roles
- 04 IEC 61850 data model and configuration
- 05 Station bus and process bus
- 06 Testing a message based trip path
- 07 Time synchronisation and its failure modes
- 08 Interoperability, migration and troubleshooting

Upcoming dates

Dates	Venue	Format	Fee per delegate
2 to 6 November 2026	Kampala, Uganda	Classroom	USD 1,325
7 to 11 December 2026	Windhoek, Namibia	Classroom	R19,950
21 to 25 December 2026	Maseru, Lesotho	Classroom	R19,950
8 to 12 March 2027	Online	Online	R8,500



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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