



## POWER AND ELECTRICAL TRAINING

# Power Station Generator Operation, Maintenance and Testing

5 day course

Classroom, online or in-house

## Course overview

A synchronous generator converts everything upstream of it into revenue, and its protection and excitation determine how it behaves when the network misbehaves. This course covers operating and maintaining one. Delegates work through construction, cooling and the operating chart that defines what the machine may be asked to do, excitation and automatic voltage regulation, and synchronising. Protection is covered in its own right, including the functions specific to generators such as loss of excitation, reverse power and stator earth fault. Testing and diagnostics cover insulation, partial discharge and rotor winding assessment, and the course closes on maintenance strategy and the analysis of abnormal operation.

## What you will learn

- Describe generator construction, cooling and the operating chart
- Explain excitation and automatic voltage regulation
- Carry out synchronising correctly and recognise a faulty synchronisation
- Specify generator protection including loss of excitation and reverse power
- Conduct insulation, partial discharge and rotor winding diagnostics
- Interpret abnormal operation and decide on continued service
- Plan a maintenance strategy across the machine and its auxiliaries

## Who should attend

- Power station electrical engineers and operators
- Protection and control engineers
- Maintenance and testing staff in generation
- Independent power producer technical staff
- Commissioning engineers

## Course outline

- 01 Generator construction, cooling and auxiliaries
- 02 The operating chart and machine capability
- 03 Excitation and automatic voltage regulation
- 04 Synchronising and faulty synchronisation
- 05 Generator protection functions
- 06 Insulation and partial discharge diagnostics
- 07 Rotor winding assessment
- 08 Abnormal operation, event analysis and maintenance strategy

## Upcoming dates

| Dates                  | Venue                | Format    | Fee per delegate |
|------------------------|----------------------|-----------|------------------|
| 9 to 13 September 2026 | Durban, South Africa | Classroom | R11,995          |
| 11 to 15 October 2026  | Lilongwe, Malawi     | Classroom | R11,995          |
| 2 to 6 November 2026   | Nairobi, Kenya       | Classroom | R11,995          |
| 13 to 17 November 2026 | Windhoek, Namibia    | 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](http://www.afrisciencegroup.com), email [info@afriScience.co.za](mailto:info@afriScience.co.za), or WhatsApp us on **+27 63 479 1136**.

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