

# Distribution Network Planning and Operations



CENTRE FOR RENEWABLE &  
SUSTAINABLE ENERGY STUDIES

## DATE

31 January - 4 February 2022

## VENUE

To be confirmed

## ACCREDITATION

Certificate of attendance (4 CPD points)

[REGISTER HERE](#)

Certificate of competence (4 CPD points)

[REGISTER HERE](#)

15 academic credits at NQF 8 or 9 level

[READ MORE](#)

## DEADLINE

Registration closes 14 calendar days before the course starts

The number of attendees is limited. Bookings will be taken on a first come, first served basis.



Implemented by:



## PRESENTER

**Dr Gerhard Botha** is an ECSA registered Professional Engineer with over 20 years' experience, centred on research in reliability and quality of supply in the utility environment. His focus on Operational Research resulted in wide exposure to the disciplines of reliability, quality of supply, planning, contracting as well as integration of renewables onto the grid. Dr Botha lectures power systems and power electronics at the North-West University.



## PRESENTER

**Prof Jan de Kock** is a Professor in Electrical Engineering at the North-West University. His academic and consulting interests include power system dynamic performance, power quality, protection performance, and optimization studies. Prof. de Kock is a registered Professional Engineer with the Engineering Council of South Africa and a Fellow of the SAIEE.



## Synopsis

Fundamentals, codes and regulations, and applications of distribution network technical planning, along with distribution network protection and technical operations in a future with increasing renewables.

### Future distribution network operations and protection

- Distribution network operations, and the role of a Distribution System Operator
- Distribution protection
- Thermal component ratings, losses, power flows and n-1 security / contingency
- Voltage variations/reactive power control and voltage stability
- Long-term operational planning (outage and maintenance)
- Measurement and compensation technologies on distribution networks
- Impact and benefits of autonomous and centrally controlled smart inverters
- Distribution Management Systems: data and modelling requirements
- SCADA topologies / architecture

### Future distribution network planning and codes

- Distribution network planning
- Grid connection interfaces of VRE plants
- Grid codes and compliance for VRE
- LV and MV network hosting capacity
- DER communications (e.g. California rule 21)
- Planning perspective on electrification
- Planning under uncertainty

## Qualification and accreditation

The module is accredited for a variety of outcomes, depending on what the attendee registers for. Module contact time (40 hours) are shared by all attendees, but additional assessments, assignments, and projects will be specific to the outcome that the attendee registered for.

- The module is accredited for ECSA Continuous Professional Development (CPD) credits, and attendees can obtain a certificate of attendance (if all lectures have been attended) or competence (if all lectures have been attended and various assessments have been successfully passed).
- The module is also accredited for 15 academic credits at both NQF8 level (Post-graduate diploma) and NQF9 level (Masters), as part of various [academic programmes](#). This requires a total time investment of 150 hours.

## Delivery Model

- The module will be delivered over five days. Pre- and post-module assignments and projects are applicable depending on the outcome the attendee registered for.
- A blended classroom/online model will be followed, with students being offered the options to attend in person (covid dependent), online only, or a mixture of these.

## Who should attend

Engineers, technologists and technicians active in the energy sector. Government and local authority officials. Architects, planners and developers. Investors. Academic students.

## Travel and Accommodation

All travel and accommodation arrangements are the attendee's own responsibility.

## Prerequisites

**Certificate of attendance:** none

**Certificate of competence / Post-graduate diploma at NQF8:** NQF7 engineering qualification

**Masters at NQF9:** NQF8 engineering qualification

**IT infrastructure:** For online attendees, adequate internet connectivity to connect reliably via Teams for the duration of the module. For Certificate of competence, Diploma and Masters attendees, a computer capable of running Windows 10 with user rights to install new software.

## Module Fees

- The standard fee for the five-day module is:
- **R12 000 for a certificate of attendance**, and
- **R14 000 for a certificate of competence**. Please refer to the University's latest study cost information for academic fees.
- Attendees from Eskom, municipalities, government, academia and industry that are actively involved in some aspect of the South African power system may apply for a **50% CPD fee reduction**.
- Cancellations made up to 21 days before the module starts will be subject to a 15% handling fee. No refunds will be made after this date; however, substitutions will be accepted.
- Payment is mandatory for attendance.
- In the case of unforeseen circumstances, Stellenbosch University reserves the right to cancel the module or change the presenter/s, in which case all fees will be reimbursed in full on request.

## Contact

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