

Power System Data Analytics



CENTRE FOR RENEWABLE &
SUSTAINABLE ENERGY STUDIES



DATE	17, 18, 21, 22 & 23 September 2026
VENUE	Hybrid Online & Engineering Faculty, Stellenbosch
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	Certificate course 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. For academic module registration deadlines, please contact the relevant academic programme coordinator.



PRESENTER AND COURSE COORDINATOR

Prof Jacomine Grobler is a member of the Department of Industrial Engineering (IE) at Stellenbosch University. She specializes in optimisation algorithm development and data science. She spent seven years in industry before completing her PhD in 2015. She has since received a number of rewards including the 2017 South African Institute for IE Most Outstanding Young Industrial Engineering Researcher Award and regularly reviews papers for leading international journals.



PRESENTER

Dr Amaris Dalton is a management consultant with Volkswagen Consulting in Germany, and an extraordinary senior lecturer at Stellenbosch University's Faculty of Engineering. Originally trained as a meteorologist, his research is focused on the integration of variable renewable energy into power systems, with a broad publication record including topics such as wind power prediction and power systems modeling. He also has extensive industry experience in environmental management and energy trading.

OTHER PRESENTERS

Mr Eldon Burger (Stellenbosch University)

ECSA Licensing Body: LB_033/2026
ECSA Service Provider: SP_011/2028



Synopsis

An introduction to the data analytics life cycle, and how to apply each phase of this life cycle to solve power system data analytics problems, with specific reference to short-term forecasting of demand and renewable energy production.

Students will learn techniques for exploratory data analysis, and how to apply machine learning approaches for mining knowledge from data sets, to extract hidden patterns, associations and correlations from data. Students will gain the practical know-how needed to apply data analytics techniques to structured data. The advanced data analytics techniques encountered will be applied to data intensive engineering problems from the power systems domain.

As part of the modelling and evaluation phases of the data life cycle the following short-term demand and VRE production forecasting aspects will be covered in more detail:

- Introduction to power system operation - the need for forecasting
- Numerical Weather Prediction (NWP) models
- Weather processes and climate for South Africa
- Relationship between weather and load
- Relationship between weather and VRE production
- VRE energy conversion models
- Weather parameter measurement (data aspect)
- Short-term load forecasting
- Application of machine learning and big data techniques to short term VRE production forecasting

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 or competence.
- Unless otherwise stated, 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 five-day course requires attendance of all lectures and tutorials, which are spread over a 2 or 3 week schedule ([see dates](#)). Delivery is online by default, with optional in-person sessions at the presenter's discretion. Certificate of Competence and academic credit participants must attend all sessions, submit all work, and achieve $\geq 50\%$. Certificate of Attendance participants must attend all sessions and attempt all tutorials; no minimum mark applies.

Who should attend

Engineers, technologists and technicians active in the energy sector. Government and local authority officials. Managers, 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 or equivalent

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 **R15 000 for a certificate of attendance**, and **R19 000 for a certificate of competence**. Please refer to the University's latest study cost information for academic fees.
- From time to time funding is sourced to subsidise module fees for specific modules for attendees from specific areas of industry. Please refer to CRSES's short courses website for the latest information.
- 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.

Short courses:

+27 (0) 21 808 4069

www.crses.sun.ac.za

Academic:

Please contact the relevant academic department, quoting course code 14479 774/874