

# Eskom Specialisation Centre in Emissions Control at North-West University



**EPPEI** Eskom Power Plant Engineering Institute

## About EPPEI

The Eskom Power Plant Engineering Institute (EPPEI) provides world-class training and research to improve the power plant industry. There are 8 Specialisation Centres at 6 South African partner universities.

EPPEI fosters a dynamic relationship between industry, academia, including universities and universities of technology and the postgraduate student to ensure that there is a balance between applied research that is relevant to industry and research that has academic merit.

EPPEI encourages the involvement of industry partners in research and innovation. Industrial partners interested in getting involved should contact the EPPEI consortium via any of the consortium partner universities or the consortium management team.

[www.eppei.co.za](http://www.eppei.co.za)



## About the Eskom Specialisation Centre in Emissions Control

Research and educational activities are performed in emission quantification, impact and control in two schools:

### School of Geo- and Spatial Sciences:

- Quantifying emissions of criteria pollutants from Eskom power stations.
- Performing impact studies of emissions on air quality, humans and environment.



### School of Chemical and Minerals Engineering:

- Optimising capture technologies for particulates, SO<sub>2</sub>, NO<sub>x</sub>, CO<sub>2</sub> and Hg relevant to the South African power industry
- Experimental work supported by Mathematical and Computational Modelling are key to our research.



## Study opportunities

Environmental and engineering courses and research in Emissions Impact and Control performed at the Potchefstroom Campus of the North-West University.

Students can enroll for **Master's** and **PhD degrees** in a variety of Environmental and Engineering disciplines.

A list of current and recent studies around the impact and control of emissions include:

- Ash particle charging and transport phenomena of ash particles, relevant to **ESPs**
- An integrated diffusion-reaction model for **wet flue gas desulphurization** with limestone sorbents
- A Cost-Benefit Analysis of the Inclusion of P84 bags in **Fabric Filter Plant operation**
- Indoor and outdoor **particulate matter concentrations** on the Mpumalanga Highveld
- **Household Air Pollution** in South African Low-Income Settlements
- **Personal Exposure** to Particulate Matter in Indoor and Outdoor Micro-Environments in Kwadela, Mpumalanga, South Africa
- **Human Health Risk Assessment** from ambient and indoor air pollution in an area where coal is used as energy carrier
- Seasonal Variation of **Major Aerosol types** over Skukuza as inferred from Sun-photometer Measurements



**“Assisting Eskom and South Africa to meet future emission requirements”**

## Career opportunities

**Chemical and Mining Industries** are two major contributors to the Gross Domestic Product (GDP) of South Africa. A career in this field ensures excellent job opportunities and security.

**Chemical Engineers** are involved in the research, design, development and management of industrial processes where raw materials are converted to products with higher economic value.

**Minerals Processing** is a specialist field in Chemical Engineering and deals with the physical and chemical processes used specifically to extract metals from ores.

**Relevance to Eskom** – The coal fired power production process consists of various chemical- and mineral unit operations, and an optimal design of these units is key to efficient and sustainable power supply.

## How to apply

The minimum requirements for admission are:

- An Engineering or BTech degree (BSc or BEng);
- Must be interested in obtaining an MSc degree or MTech or MEng in Emissions Control either at a University or a University of Technology (UoT);
- An overall average final year mark of 60% and above.

Candidates need to attend a short preparatory program at the Eskom Academy of Learning prior to registration at a University or UoT. Candidates will be allowed to register at the University or UoT after successful completion of the screening exams.

In preparation for the application prospective students are required to submit the following documentation:

- Certified copies of ID, degree and academic record;
- Short description of your responsibilities and main outputs over the last six months;
- Short resume and motivation for admission into the programme;
- A single colour passport size photo;
- A research topic title and description and possible industrial mentor:

## Contact details

### **School for Chemical and Minerals Engineering**

Prof. Hein Neomagus  
Tel: +27 18 299 1991 Email: [hein.neomagus@nwu.ac.za](mailto:hein.neomagus@nwu.ac.za)  
<http://engineering.nwu.ac.za/chemical-and-mineral-engineering>

### **School for Geo- and Spatial Sciences**

Prof. Stuart Piketh  
Tel: +27 299 1582 Email: [stuart.piketh@nwu.ac.za](mailto:stuart.piketh@nwu.ac.za)  
<http://natural-sciences.nwu.ac.za/geo-and-spatial-sciences>