

The University of KwaZulu-Natal (UKZN) is committed to Employment Equity with the intention to promote representativity within the Institution. Preference will be given to applicants from the designated groups.

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCE

**POSTDOCTORAL FELLOWSHIP
01 June 2024 – 31 May 2026 (Reevaluated after year 1)
THERMODYNAMICS RESEARCH UNIT
SCHOOL OF ENGINEERING
HOWARD COLLEGE CAMPUS**

REF NO.: TRU01/2024

The Thermodynamics Research Unit (TRU) within the School has three postdoctoral fellowship positions available.

Successful candidates will conduct research within the areas of energy, water and waste management in renewables and green hydrogen production.

Specific research themes include:

- Integrated water resource management system for green hydrogen production
- Brine water waste modelling and treatment
- Process control and optimisation of electrolyser systems
- Power-to-X process design and optimisation
- Sustainable carbon for green hydrogen production
- Techno-economic and life cycle analyses across the hydrogen value chain
- Waste management and valorization in e-waste/mining waste, carbon dioxide capture/storage

Minimum Requirements:

Applicants must have completed a doctoral degree in Engineering or a suitable relevant aligned discipline within the past five years (PhD in a relevant discipline/ field)

Additionally

- Demonstrate experience in writing journal articles and publications in the relevant area of expertise
- Experience in measurements involving wastewater, green hydrogen, bioremediation, desalination R/O, waste management, carbon dioxide capture/storage, or technoeconomic and life cycle/impact analyses
- Knowledge in analytical measurements, such as GC or GC-MS, thermophysical property measurements
- Knowledge of experimental design and experimental techniques in the broad area of renewable/green hydrogen energy, water, carbon capture and waste management
- Experience in relevant modelling and use of design software such as Aspen Plus®, Aspen Plus Dynamics®, and SimaPro® or equivalents

The incumbent will be required to:

- Work closely with the project leaders in the Unit to provide research assistance on projects
- Contribute to the management and development of the facilities of the Unit
- Assist with the mentorship of both undergraduate and postgraduate activities
- Write funding proposals to sustain research activities

Desirable:

- A bachelor's degree in Engineering that grants eligibility to register as a Candidate/Professional Engineer, will be considered a significant benefit
- Strong leadership qualities and strength in verbal and written communication in English
- Relevant experimental abilities in analytical techniques (e.g. GC, GC-MS, FTIR)
- Experience in process and control models and life cycle analyses for relevant applications using simulation software such as Aspen Plus®, Aspen Plus Dynamics®, and SimaPro® or equivalents

Enquiries and details regarding this post may be directed to Prof K Moodley via email: moodleyk6@ukzn.ac.za

The postdoctoral fellowship is for 24 months (reevaluated after year 1), with a nationally competitive reimbursement. This is funded through the Thermodynamics Research Unit.

The closing date for receipt of applications is 3 May 2024.

Applicants are required to submit the following:

- (i) a covering letter highlighting their experience in meeting each of the minimum requirements as listed above.**
- (ii) a detailed CV including the list of publications**
- (iii) contact details for two referees**
- (iv) a certified copy of the applicant's doctoral degree certificate or PhD award letter/relevant evidence of pending completion**
- (v) a certified copy of the applicant's ID / permanent residency document / foreigners must be in possession of relevant permits.**

Applications must be emailed to the discipline administrator, Mrs N Ngcobo, email: ngcobon8@ukzn.ac.za before the closing date (cc Prof K Moodley moodleyk6@ukzn.ac.za). The subject line must clearly indicate the reference no. TRU01/2024 Postdoctoral fellowship.

Late applications will not be considered. Shortlisted individuals will be contacted on or before 15 May 2024. An online interview will take place. The research group reserves the right not to make an appointment to this advert. Should you not receive a reply or update by the 30 May 2024, kindly consider that your application has not been successful.

The University reserves the right not to make an appointment to this advertisement.

Kindly note that the University of KwaZulu-Natal ("the University") is required to process any Personal Information (as defined by the Protection of Personal Act, 2013 "POPIA") submitted by candidates when applying for positions at the University. The University will endeavour to ensure that the appropriate security measures are in place and implemented for both electronic and paper-based formats that are used for processing of the personal information recorded through this recruitment and selection process. We refer you to the University's relevant Section 18 notice at

[http://vacancies.ukzn.ac.za/Libraries/General_Documents/Section_18_Notice -
Employees_and_Potential_Employees.sflb.ashx](http://vacancies.ukzn.ac.za/Libraries/General_Documents/Section_18_Notice_-_Employees_and_Potential_Employees.sflb.ashx)