

Systematising DES based separations of low volume, high value chemicals using applied thermodynamics

PhD (Chemical Engineering) OR MEng (Chemical Engineering) (Research)
(read more [here](#) about the programme and admission requirements)

Host: Prof. Jamie Cripwell

Commencement: The successful candidate must assume postgraduate work in January 2027.

Bursary: Candidates should contact the host to coordinate a bursary application to the NRF using the grant award reference. **NRF applications close 03 July 2026.**

Candidates with exceptional academic records will be eligible for bursary support subject to availability of funds.

This NRF funded research project aims to “deepen” the research into application of deep eutectic solvents as sustainable alternative solvents by exploiting their nature as mixtures using applied thermodynamics principles. This involves a two-tiered approach where experimental measurements of thermophysical properties, equilibria and solvent extraction ability of DES mixtures are considered in parallel with advanced thermodynamic modelling of these same properties and phenomena. The research is anchored in the South African bioeconomy, using local bio- and agri-feedstocks as a case study for systematic improvement of these separation systems. The prospective candidate will have the opportunity to contribute to this exciting research drive with either an experimental or modelling focus, as suits the candidate.

The position is for full time on-campus studies only.

Requirements

- **For PhD applicants:** A master’s degree (MEng/MSc or similar) in chemical engineering or related field from an accredited tertiary institution.
- **For MEng applicants:** A bachelor’s degree (BEng/BScEng or similar) in chemical engineering from an accredited tertiary institution. Applicants with a BSc Honours degree in Chemistry will also be considered. *Note that applicants with BTech, National Diploma, or Advanced Diploma qualifications will not be considered for these positions.*
- Applicants must display academic excellence (**minimum** requirement is an average of >65% in the final year of the previous degree).
- Previous experience in open-source coding languages (in particular Julia and scientific computing with Python) will be a definite advantage, but is not required. Basic coding proficiency is required however.
- Preference will be given to South African citizens and permanent residents who display academic excellence.

Application

Interested candidates must provide a cover letter, CV, degree certificate(s), complete academic transcript(s) (and thesis, in the case of PhD applicants) and contact details of at least three academic references. Applicants may also send their final-year research project (or similar) for an example of previous academic written work. Incomplete applications will not be considered. Applications can be sent to cripwell@sun.ac.za. Candidates may consider their application unsuccessful if they do not receive any feedback within four weeks of applying.

Further to submitting the application documents to Prof Cripwell, candidates must also complete and submit an institutional application. Please read more about the application process [here](#).

Stellenbosch University reserves the right not to fill the position.