Development of a transparent and modular model library for integrated process simulation

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

Host: Prof Tobi Louw

Commencement: The successful candidate must assume postgraduate work in February 2025.

Bursary: The successful candidate will be offered a bursary per year of study, for two years of master's studies.

Many mathematical models have been developed to support the simulation of minerals processing unit operations, ranging in sophistication from simple mass balances to lumped parameter dynamic models suitable for control and even complex and computationally expensive fluid dynamics models. While many of these models are available in literature, the approaches to model implementation and the availability of implemented models varies, limiting opportunities to combine models for the simulation of integrated processes across the mine-to-metal value chain.

The aim of this project is to draw on existing literature and initiate the curation of a library of well-established mathematical models relevant to the minerals processing industry and implemented using freely available software (Python and Julia). This will enable the minerals processing community to draw on models from the library and connect them in ways that are fit-for-purpose.

Requirements

- A bachelor's degree (BEng/BScEng or similar) in chemical or metallurgical engineering from an accredited tertiary institution. *Note that applicants with BTech, National Diploma, or Advanced Diploma qualifications will not be considered for these positions*.
- Candidates should have an interest in mathematical modelling, numerical methods, and coding.

Application

Interested candidates must provide a cover letter, CV, degree certificate(s), complete academic transcript(s) 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 tmlouw@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 Tobi Louw, 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

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