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South African National Energy
Development Institute

ENERGY INNOVATION FOR LIFE

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SOUTH AFRICAN NATIONAL ENERGY DEVELOPMENT INSTITUTE - CLEANER FOSSIL FUELS DEPARTMENT

Call for Bursary Applications - 2020

The South African National Energy Development Institute (SANEDI) hereby invites applications for bursaries from interested South African researchers.

The bursary will cover study costs for Honours, Masters and Doctoral research-based studies in the field of Carbon Capture and Storage (CCS).

SANEDI aims to transform the energy research and development (R&D) human capital available to the country, not only by growing it, but by ensuring that women and previously disadvantaged individuals (PDIs) receive sufficient support.

The selection will be done by SANEDI, which reserves the right not to accept any application. Please note that SANEDI's bursaries are awarded subject to the *SANEDI Bursary Terms and Conditions*.

The application form can be downloaded from the SANEDI and SACCCS website. Please submit your application with any other supporting documents by post or email to the address below. **The deadline for applications is 28 February 2020.**

Attention:

Ms Thembi Mabaso
South African National Energy Development (SANEDI)
Upper Grayston Office Park
152 Ann Crescent, Block C
Strathavon, Sandton, 2031

Post: P O Box 786141, Sandton, 2146

For Inquirers Call: 011 038 4315 /4389

Email: ccsbursary@sanedi.org.za

PLEASE SELECT ONE TOPIC BELOW OR SUGGEST A RELEVANT TOPIC OF YOUR CHOICE

1. Geology for CO₂ Storage

1.1 Master of Science (MSc): Seismic stratigraphy and CO₂ storage potential of the Central Orange Basin, west coast, South Africa

Project Description

The University of KwaZulu-Natal seeks motivated graduates to investigate the seismic stratigraphy and associated CO₂ storage potential of the northern regions of the Central Orange Basin. The project involves sedimentological and structural interpretations of seismic and offshore well data. The project aims to define potential reservoir-seal pairs in offshore formations for potential CCS. The deliverable will be an interpretation of the seismic stratigraphy and volumetric calculations of potential CO₂ storage in identified sites.

This MSc studentship is in the rapidly growing field of CCS. The successful candidate will form part of a specialist research group at UKZN focusing on marine sedimentology, geophysics, and CCS activities.

Entry Requirements

- Applicants require an Honours degree, or equivalent, in a relevant discipline of Geology.
- Applicants are encouraged to have pre-existing experience with petrophysics (seismic analyses and interpretation) and borehole logging.

Project Notes

The data underpinning this project were obtained from the Petroleum Agency SA under academic licence by UKZN/SACCCS. These data are not transferable to other academic institutions and prospective applicants must register with the UKZN Geology department to undertake this topic of research.

Corresponding Project Supervisors:

- Prof. Andrew Green – University of KwaZulu-Natal
Dr. Nigel Hicks – Council for Geoscience (CGS)

1.2 Master of Science (MSc): Seismic stratigraphy and CO₂ storage potential of the SW Cape Sedimentary Wedge, west coast, South Africa

Project Description

The University of KwaZulu-Natal seeks motivated graduates to investigate the sequence stratigraphic evolution and associated CO₂ storage potential of the Southwestern Cape Sedimentary Wedge of the southern Orange Basin. The project involves sedimentological and structural interpretations of seismic reflection and offshore well data. The project aims to define potential reservoir-seal pairs in offshore formations for potential CCS. The deliverable will be an interpretation of the seismic stratigraphy and volumetric calculations of potential CO₂ storage in identified sites.

This MSc studentship is in the rapidly growing field of CCS. The successful candidate will form part of a specialist research group at UKZN focusing on marine sedimentology, geophysics, and CCS activities.

Entry Requirements

- Applicants require an Honours degree, or equivalent, in a relevant discipline of Geology.
- Applicants are encouraged to have pre-existing experience with petrophysics (seismic analysis) and borehole logging. A strong knowledge of sequence stratigraphic principles is of benefit.

*** Project Notes**

The data underpinning this project were obtained from the Petroleum Agency SA under academic licence by UKZN/SACCCS. These data are not transferable to other academic institutions and prospective applicants must register with the UKZN Geology department to undertake this topic of research.

Corresponding Project Supervisors:

- Prof. Andrew Green – University of KwaZulu-Natal
- Dr. Nigel Hicks – Council for Geoscience (CGS)

1.3 Master of Science (MSc): The sedimentology of the onshore Algoa Basin, South Africa based on borehole data.

Project Description

The project is supported by SANEDI/SACCCS and is **open to all Universities in South Africa**.

The project involves sedimentological and structural interpretations of borehole data from the onshore Algoa Basin in the Eastern Cape Province, South Africa. The twenty-five onshore wells intersecting the Cretaceous deposits in the onshore Algoa Basin were drilled to depths of between 700 and 4 600 m. The project aims to define potential reservoir-seal pairs in the onshore formations within the Algoa Basin for potential CCS. The deliverable will be an interpretation of the boreholes including porosity and permeability measurements of potential sand-rich zones.

This MSc studentship is in the rapidly growing field of CCS. The successful candidate will form part of a specialist research group focusing on sedimentology and CCS activities.

Entry Requirements

- Applicants require an Honours degree, or equivalent, in a relevant discipline of Geology.

*** Project Notes**

The prospective applicant and associated institution **will need to apply to the CGS** for academic use of borehole data housed by the CGS at the National Core Repository in Donkerhoek, Pretoria.

Corresponding Project Supervisors:

Open

1.4 Master of Science (MSc): The application of CCS to aid Enhanced Coal bed Methane (ECBM) production in South Africa.

Project Description

The project is supported by SACCCS and **is open to all Universities in South Africa.**

The project is open to all aspects of CO₂ storage for application in ECBM extraction. Aspects can include chemical or geological facets but must focus on regions in and around current CO₂ producing regions (IE currently active coal and energy producing regions) within South Africa.

This MSc studentship is in the rapidly growing field of CCS. The successful candidate will form part of a specialist research group focusing on sedimentology and CCS activities.

Entry Requirements

- Applicants require an Honours degree, or equivalent, in a relevant discipline of Geology.

*** Project Notes**

- None

Corresponding Project Supervisors:

Open

1.5 Effects of aquifer/Cap-rock interface on storage of CO₂.

1.6 Strategies to enhance long term secured CO₂ storage.

2. CO₂ Utilisation and/or Mineralisation

2.1 Passive sequestration of carbon dioxide by solid mine waste materials: A case study on any mining operation targeting a deposit that is mafic-ultramafic hosted.

2.2 Quantitative investigation of weathering rates Mg- and Ca- rich primary minerals found within mafic-ultramafic mine tailings: Implications on passive and active carbonation rates.

2.3 [Semi-] quantitative identification and ranking of the mineral carbonation potential of mine waste material generated from all types of mining operations in South Africa.

3. Socio-economic [Stakeholder Engagement and CCS funding]

- 3.1 Carbon Taxation in South Africa: An opportunity for CCS to generate much needed corporate support/intervention.
- 3.2 Identify technologies that compete with CCS and then assess their shortfalls that could be filled by CCS.
- 3.3 Investigate potential barriers to successful implementation of CCS and thereafter provide plausible solutions/recommendations.