FRAME Project Description

The project, Fostering Research and Intra-Africa knowledge transfer through Mobility and Education (FRAME) aims at strengthening research and education exchange to help finding solutions to the challenges of Food, Energy and Water Security (F.E.W.S) in Africa amid increased pressure from climate change, population, development and related impacts. FRAME has five African university partners (i.e. Buea, Cameroon; Hawassa, Ethiopia; KNUST, Ghana; Free State, South Africa and NUST, the applicant and coordinator, Namibia) with University of Twente, Faculty of ITC and Namibia Qualification Authority as technical and associate partners respectively.

The objective of FRAME is to implement mobility via a strong graduate research and studies programme (GRSP) on Food, Energy, and Water Security (F.E.W.S) with a suite of academic programmes that contribute to this topic. The GRSP model is based on the research plan built on the needs of partner countries and using university centres as hosts of the mobility beneficiaries. Using GRSP, FRAME seeks to foster an integrated approach that encourages multi and trans-disciplinarily research aimed at contributing to the capacity required to improve F.E.W.S in partner countries.

The composition of the graduate degree programmes on offer and the existing overlap in thematic fields allows for academic mobility and research in this scheme that is beneficial for each partner. For example, countries with a similar defined need in agricultural sciences (Namibia, Cameroon, Ethiopia and Ghana) still offer different areas of specialisation within their programmes: Crop production/crop protection, Agronomy, Agroforestry, Soil Science, Agricultural economics, and Animal science. Ghana, South Africa and Namibia offer expertise in Energy technologies which others tap into while Namibia has a strong and proven natural resources management track record that is shared with partner universities.

Some of the programmes chosen are research based aimed to increase research skills and capacity of students and also increase research outputs. Through the combined areas within the consortium, the diversity of the programmes is targeted considerable so that students can either expand their study spectrum or to acquire specialisations. In case of non-degree mobility, mobility up to 9 months are offered to comply with an area that matches the previous degree of the applicant to enhance future academic career options and employability.

Description and Number of Positions

Type: PhD
Number: 1 scholarship
Position Duration: 48 months
Mobility Scholarship duration: 36 months

Host Academic Programme (Only insert and describe briefly)

The Doctor of Philosophy (PhD) in Engineering aims at producing scientific researchers in various sub-fields of learning related to engineering. Students will develop a thorough understanding of relevant methodological approaches, and develop competence in the application of qualitative, design, mixed-mode and quantitative research methods through participation in research projects under supervision of experienced staff members. The precise focus of the research will be determined through dialogue between the candidate and supervising staff and will fall within the scope of the approved research clusters of the Faculty of Engineering. The research output of students, in the form of a thesis, must be an original and

substantive contribution to the existing body of knowledge in the relevant engineering sub-field of learning/area of specialization.

During and upon completing the PhD in Engineering, the student shall:

1. produce and present a comprehensive research proposal and concomitant research plan;
2. plan and conduct independent research to internationally recognised standards by implementing a chosen research method, collecting, analysing, interpreting and evaluating quantitative and/or qualitative data demonstrating a high level of research competence;
3. demonstrate highly specialised, authoritative knowledge in the sub-field of learning/area of specialisation, and the ability to apply that knowledge in solving real-world engineering problems;
4. produce a thesis that represents an original contribution to the body of knowledge in the sub-field of learning/area of specialisation;
5. present research work in a professional and effective way, catering for a wide range of specialist and non-specialist audiences;
6. provide leadership in the area of research and scientific writing.

Applicants who hold qualifications from recognized institutions at NQF Level 9, or equivalent, in relevant sub-fields of Engineering may be considered for admission to this programme. Applicants need to provide evidence of having conducted supervised research at master's degree level and may be required to make up specific deficiencies. In addition, applicants may be required to attend a pre-selection interview. The final selection and admission of candidates will be approved by the Postgraduate Studies Committee.

https://www.nust.na/?q=programme/fe/doctor-philosophy-engineering

Description of Host

Bush encroachment is one of the key agricultural challenges in Namibia. To date it is estimated that more than half of the country's prime rangelands are affected by the phenomenon. In figures, this affects 30 to 45 million hectares which is more than 30 per cent of Namibia's land area. The most significant consequences of bush encroachment are reduced carrying capacity of affected rangeland, groundwater recharge and biodiversity loss.
NUST aims to become the leading university in Africa known for being a trendsetter in higher education and applied research internationally. Key goals for NUST include "knowledge creation" in the applied and multidisciplinary arenas and contributing to economic and social development. It aims to do this through the promotion and facilitation of sustainable innovation, technology development and knowledge transfer in conjunction with national and international partnership with other universities, institutions and organisations. In line with this, NUST aims to further develop and expand its research involvement in Biomass Utilization by Sustainable Harvest issues in Namibia.
This project has adopted a multidisciplinary approach to Biomass Utilisation by Sustainable Harvest issues in Namibia involving the following Faculties and Centres at NUST: The Faculty of Natural Resources and Spatial Sciences (FNRSS), the Faculty of Engineering (FE), the Faculty of Health and Applied Sciences (FHAS), and the Innovation Design Lab (IDL). Additional to the research, are its tangible technology development outcome, most of which will be delivered by 2021 in parallel to a pragmatic stakeholders' knowledge creation pathway.

Upscaling of Bush Control and Biomass Utilisation requires technologies, applied research and capacity development solutions that:

a. meet the specific challenges of bush encroachment in Namibia,

b. responds to the development challenges of the Namibian socio-economic and physical environment (such as employment creation, semi-skilled jobs, labour standards etc),
c. are environmentally sustainable and
d. are innovative and develop locally reproduceable realistic technologies.

The overall objective of the project is to develop and test innovative, climate-friendly technologies for bush control as well as to develop capacities for biomass utilisation in Namibia. The key attributes of this project are:

1. To position Namibia as a centre of excellence in biomass utilisation.
2. To support the development of a bio-economy sector and the resulting overall economic benefits.
3. To develop capacities and knowledge for the emerging biomass sector.
4. For NUST to become a regional leader in bush control and biomass utilisation research and development.

Position requirements

This position is for a PhD candidate majoring in biomass and the bio-economy to work full time on the project while completing his studies. Applicants must meet the general NUST admission requirements and the BUSH specific requirements. To be considered, the applicant must:

- Hold a Master's degree in a relevant field from a recognized Higher Education Institution (HEI)
- A minimum score of 65% at the Master's level especially the research component
- Good mastering of the English Language
- Research Skills with a strong comprehension of Techno-economical evaluations
- Experience in Namibian bush biomass and bio-economy or related fields will be an added advantage
- A good extended concept note on a topic that relate and expands on Namibia's biomass, and bio-economy.

Scholarship Position Benefits

- Settling Allowance
  900 €
- Monthly Subsistence Allowance
  900 €
- Allowance for female scholarship holders
  (per academic year only for mobility equal or longer than 2 academic years) 900 €
- Research Costs
  (per academic year only for mobility equal or longer than 10 months) 2000 €
- Insurance Costs
  75 €/per month
- Travel and Visa Costs

Who can apply? (Scholarship Eligibility)

All applicants must have studied and obtained a qualification at any African Higher Education Institution. In addition:

- **Target Group 1 (TG 1):** Nationals and/residents of African countries who are staff, alumni and or students registered in one of the Partner Universities at the time of application

- **Target Group 2 (TG 2):** Nationals and residents of Africa, registered in or having obtained a university degree or equivalent in a higher education institution of such countries and not included in the Partnership.

Application Documents

Potential applicants must:

- Complete the NUST online application available at www.nust.na
- Attach certified copies of all certificates
- Certified copies of academic records
- A certified copy of identification document
- A concept note of about 2 pages on one of the areas of research, inclusive of key references.

Contacts Details

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Visit the FRAME website: https://frame.nust.na/ and click on the call for further details.

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