

KENYATTA UNIVERSITY



CALL FOR APPLICATION FOR PhD SCHOLARSHIPS IN THE DEPARTMENT OF ENERGY ENGINEERING AT KENYATTA UNIVERSITY

Background

Kenyatta University, Technical University of Denmark, the Geothermal Training Centre of Dedan Kimathi University of Technology, and a consortium of leading energy companies in Kenya, Denmark, Tanzania and Zambia have been awarded a research grant by **DANIDA FELLOWSHIP CENTRE (DFC), Denmark** under the project “**WIDESPREAD USE OF GEOTHERMAL ENERGY IN EA**” to develop and demonstrate novel technologies in the exploration, development, management and exploitation of low to intermediate temperature geothermal resources for direct use (DU) in smart agriculture, industrial production and generation of electrical power. Working with the regional office of the **UNITED NATIONS ENVIRONMENTAL PROGRAMME (UNEP)**, the team is expected to identify and develop efficient cost effective technologies that will boost food production in rural communities, generate electrical power to support industries that will lead to reduced emission of green-house gases while increasing the usage of geothermal resources as a renewable source energy in the region. Other expected benefits to be realized through increased utilization of the largely unexplored low to medium temperature resources are creation of jobs in climate smart agriculture, food security, and education. This, in turn, will contribute to the achievement of the Sustainable Development goals of the Global Agenda 2030 and AU Agenda 206, i.e. affordable and clean energy (Goal 7), industry, innovation and infrastructure (Goal 9), sustainable cities and communities (Goal 11), and climate action (Goal 13).

In order to achieve the above goals staff training to develop the required competencies has been identified as an important component of the research project. Consequently two (2) PhD scholarships have been awarded to the Department of Energy Engineering at Kenyatta University as part of the project. The selected candidates will work with leading energy experts in the listed universities and the affiliated institutions, and will be co-supervised by leading energy experts and researchers at the Technical University of Denmark.

The aim of this advert is to invite applicants to seek this opportunity. The proposed specific areas of study are given below.

Scholarship 1. Estimation of the energy potential of low- and medium-temperature geothermal resources in Kenya. The study is expected to come up with methods of developing conceptual models for characterization of low-to medium-temperature reservoirs through numerical modelling, integration of geological, geophysical, hydro-geological, and geochemistry knowledge, and well data. The developed models will use experimental and field data, which will be provided by the project partners. Subsurface models will be used to assess the geo-stress field with respect to wellbore instability and integrity, and how this affects overall power potential. The study will identify gaps in the available information, resulting in guidelines for future projects. The model will be validated with well and production data from the various fields in Kenya.

Scholarship 2. Development of optimization methodology for multi-generation plants for Kenyan geothermal resources. The focus of this research will be to develop methodologies for the optimal integration of multi-generation plants into a single energy stream that will include direct use of heat, binary power plants, and how both forms of energy can be used in domestic and industrial set-ups. Working closely with experts at the Denmark Technical University and other team members the study will provide specific components models for design, analysis and optimization of multi-generation system that will incorporate newly developed technologies in Denmark.

These scholarships are open to candidates of **all nationalities**. The scholarships will cover full costs of tuition, research equipment in any of the participating countries, travel grants and stipend. Candidates with at least Master of Science degree in mechanical, civil, petroleum or energy engineering, and geology, geophysics, geophysics or the earth sciences are invited to apply. Candidates with work and research experience in geothermal industry are particularly encouraged to apply.

Applications should include the following documents,

1. Letter of application for scholarship identifying the project the candidate wishes to undertake.
2. A complete C.V listing all competencies and publications, and professional affiliations.
3. Copies of university degree certificates and transcripts, and any other relevant certificates.

All applications should be submitted by end of working day March 15, 2021 to the following address; geothermal_energy@ku.ac.ke.

Any inquiries can be sent to info_geothermal_energy@ku.ac.ke