

## Letters of Interest Submission



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# The Pan African Virtual Nuclear University

This LoI supports the establishment of a Virtual University for a broad scope of disciplines related to the beneficiation of nuclear technology.

It has been proposed by AFCONE to the AU and the Pan African University, as a new department at the PAU, initiated as a virtual University. Such a process is also foreseen by the AFRA-NEST founding documents. AFRA-NEST has facilitated the development and audit of many nuclear related training activities by country within Africa.

The aim is to configure the Pan African umbrella, where real Universities can adhere in terms of an MoA that defines the Quality, Operations, Governance and Financial aspects. The early registering real Universities contribute material in virtual courses as a pilot. The Pan African Virtual Nuclear University can grow from there and be rolled out to include other many other African countries. As such it would evolve from a national to a Pan-African programme. This lowers the threshold to participation by African Universities in Nuclear training, as they benefit from the pool of training material and presenters within the Pan African Virtual Nuclear University.

This Nuclear Science Training Programme is primarily oriented to ensure high level human capacity for the safe, sustainable operation and development of nuclear energy for electricity in South Africa. However the benefits of peaceful uses of harnessing the science of the atom are far broader. There are therefore also programmes which are enabled by green, nuclear electricity and process heat. In the water sector, these include the water grid, desalination and clean water. In the energy carrier sector these include the hydrogen economy and synthetic fuels. The synthetic fuels would be derived from carbon capture, and therefore be as carbon neutral and green as the hydrogen economy. Then there are the medical applications of nuclear technology, diagnostic and therapeutic. In fact the full suite of nuclear applications including health generally, the mining sector, agriculture, the environment and others are represented in the training programmes. The scope also includes capacity building in the processing and storage of nuclear waste. In addition, the scope includes capacity building in the management of nuclear projects, the economics of energy and the legal and regulatory issues.

The educational material would be derived from the best educators in academia and industry. An inclusive model has been developed which allows multiple Universities and other Tertiary Institutions to partner in the production and delivery of the material, and in the provision of post graduate research opportunities. In addition to the internal tertiary institutions contributing to development and delivery of the training material, there are also external stakeholder partners. These are for example vendors of major nuclear energy equipment. Clearly there is a need for a component of the nuclear energy training to be targeted to specific systems that are destined to be purchased and operated within Africa. Some examples of participating Vendors could be Rosatom (Russia), Areva, EDF (France), Kepco (Korea), HTR-PM (China), NuScale, USNC, Westinghouse (USA) and so on. The participation model is characterized by inclusivity. The new model builds on other national multi-University training programmes in South Africa such as National Astronomy and Space Science Programme (NASSP) which delivers for the SKA project in Africa and the National Nanoscience Postgraduate Teaching and Training Programme. There are other models, such as the Erasmus mobility programmes and the World Nuclear University, as well as the many MOOCs on offer. The training material and programmes would be coursework at the NQF 7 and 8 levels (i.e. bridging courses at 3rd year level and 4th year level courses aimed at a post graduate honors level qualification in the fields mentioned above). There are also advanced courses at the NQF 9 level which would constitute a taught MSc by Coursework or a MSc partly by Coursework and Dissertation. There would also be research opportunities for the dissertation component of a MSc and also for a PhD by Thesis. The students would formerly register at one of the participating Universities. However the tuition and/or supervision would be provided by a collective of Universities and Institutions, within the Virtual University concept.

The primary branding will be that of the new Pan African Virtual University, or similar. The participating institutions will be co-branded, according to their contributions.

**Primary Category**

Energy

**Secondary Category**

Energy

**Subgroup categories**

NONE

**Did you / will you submit this LOI to another category?**

NO

**Additional Information**

Nuclear

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