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## Nuclear Security Capacity Building at the Centre for Applied Radiation Science and Technology (CARST)

*Tuesday, 8 July 2014 13:00 (1 hour)*

### Introduction:

Developing a PhD in Applied Radiation Science and Technology Curriculum  
(Specializing in Nuclear Security)

The Centre for Applied Radiation Science and Technology (CARST) was founded as a pioneer in the Applied Radiation Studies. It is mandated to carry out research and build capacity for the Nuclear Industry in South Africa.

To promote its Pillar of Applied Research, CARST is in the process of introducing a new PhD Programme in Applied Radiation Science and Technology (ARST), which should produce competent Nuclear Scientists trained in various fields including Nuclear Security.

Therefore the Projects will involve development of the said PhD Programme, teaching material for MSc- and Certificate- in Nuclear Security for training Postgraduates and Faculty Members in order to produce nuclear security expert in the country. CARST will also liaise and work very closely with the IAEA on its Support for Nuclear Security Education Programme which was first rolled out in June 2012 and the MSc in Nuclear Security launched in March 2013.

The Aim is to prepare for South Africa's Nuclear Build that has been hinted by the Government.

As a Center for Applied Radiation Science and Technology we seek to achieve the following specific objectives:

- i. Development of teaching material for Professional Development of Faculty and promotion of nuclear security education
- ii. Contribute toward national efforts to achieve effective security with regards to use, storage and/or transport of any special nuclear or other radioactive material.
- iii. Be a Center with for capacity building, training and professional development of nuclear security experts
- iv. Collaboration with International Nuclear Security Education Network (INSEN) as a member of its Working Group II: Faculty development and cooperation among universities

### Methodology:

1. Attending the International Conference on Advances in Nuclear Forensics: Countering the Evolving Threat of Nuclear and Other Radioactive Material out of Regulatory Control, will expose me to current technologies and developments in Nuclear Forensics Capacity Building
  - 1.1. Awareness, training and exercises
  - 1.2. Research and development
  - 1.3. Education and development of expertise;As a sub-field of Nuclear Security, CARST seeks to be a training Center for the the three bulleted sub-topics above.
2. From the Conference, Professional time will be spent on:
  - i. Developing the PhD Curricula mentioned at the Introduction and submitting to South African Qualifications Authority (SAQA), Higher Education Quality Committee (HEQC) and the Institutional Committee for Academic Standards (ICAS).
  - ii. The Building facilities will be used for

Training Faculty members on Nuclear Security following the IAEA Nuclear Security Series No 12 Educational Programme in Nuclear Security

Training identified border post personnel in the monitoring of illicit trafficking of radioactive materials.

3. Contribution to Nuclear Security

By attending the International Conference on Advances in Nuclear Forensics: Countering the Evolving Threat of Nuclear and Other Radioactive Material out of Regulatory Control , we hope to establish linkages with experts who can then visit our Center to train our Faculty Members on Nuclear Forensics –Research and Development.

This will be pursued in parallel with efforts to attend the IAEA Pilot Professional Development Course for Faculty Members; Introduction of Nuclear Security;- scheduled for 6-10 January 2014 at King's College London, UK. This will be a 2 x one week classroom training or Distance learning sessions, group work and individual assignments and technical visit. CARST faculty members will chose either distance or classroom sessions depending on available funds from the Nuclear Security Practices Grants (NSPG).

To effectively contribute to nuclear security CARST use its membership to the International Nuclear Security Education Network (INSEN) to join the Working Group II: Faculty development and cooperation among universities.

Expected Outcome and Sustainability Potential

The following are the expected long term and short term Project outcomes:

Short term:

- i. Faculty members trained under the faculty development programme who will then be able to effectively offer the MSc and Certificate Curricula in Nuclear Security as well as Certified Short courses in nuclear security.
- ii. Launch of MSc and Short courses: Once developed and approved by the Qualifications authorities, the Curricula will be launched and training offered to cover also nuclear security from Course level to PhD.

Long Term:

The proposed PhD Curricula will provide sustainable training to Postgraduate in nuclear security, nuclear forensics at the same time providing the exceptional skills needed by South Africa's nuclear industry.

Who will benefit:

- i. It is expected that about five to seven PhD's in ARST (of which one to three PhD's graduates specializing in Nuclear security) will be produced starting in January 2015.
- ii. At least ten MSc student should be produced as from end of 2014. Currently CARST has four MSc students who will complete in October 2014.

## Country and/or Institution

Republic of South Africa

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