

UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG



Current activities in nuclear education at Wits

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Current activities in nuclear education at Wits

Wits is currently active in a broad spectrum of nuclear education topics with courses in the following Faculties at both undergraduate and graduate level, including;

- Science
- Engineering and the Built Environment
- Commerce, Law and Management & Health Sciences

A number of the courses are inter-faculty initiatives that have been developed in recognition of the fact that nuclear science and technology, and its management span a broad range of subjects that traditionally live in a number of different faculties

CLM

Certificate in
International Law

Engineering
and the Built
Environment

MSc NTL

Science

BSc Nuclear Science &
Engineering



Review of nuclear education activities

- Recently undertaken an extensive review of educational opportunities in the nuclear arena as a result of a “Request for Information” (RFI) from the National Nuclear Regulator (NNR).
- Information presented has been drawn from the RFI
- Wits is very well placed to be significantly involved in the whole nuclear fuel cycle

Undergraduate courses related to nuclear education

Courses and programmes given in the following disciplines

- Physics
- Chemistry
- Chemical Engineering
- Electrical and Electronic Engineering
- Materials
- Mechanical, Industrial and Aeronautical Engineering
- Earth, Atmospheric and Environmental Sciences

Postgraduate courses – currently in existence

Information taken from NNR RFI submitted by Wits

| /Module | Description | Availability at Wits | Comments |
|---------|---|----------------------|--|
| 91 | Reactor Physics, Criticality & Design | ✓ | |
| 92 | Nuclear Fuel Cycle | ✓ | |
| 93 | Radiation & Radiological Protection | ✓ | |
| 94 | Decommissioning, Radioactive Waste and Environmental Management | ✓ | |
| 95 | Water Reactor Performance and Safety | ✓ | |
| 96 | Reactor Materials & Lifetime Behaviour | | Material exists but no presenter |
| 97 | Nuclear Safety Case Development | ✓ | |
| 98 | Particle & Colloid Engineering in the Nuclear Industry | | No expertise |
| 99 | Policy, Regulation & Licensing | ✓ | |
| 10 | Processing, Storage & Disposal of Nuclear Waste | ✓ | |
| 11 | Radiation Shielding | ✓ | |
| 12 | Reactor Thermal Hydraulics | ✓ | |
| 13 | Criticality Safety Management | | |
| 14 | Risk Management | ✓ | |
| 15 | Geological Disposal of Radioactive Waste | ✓ | |
| 16 | Radiological Environmental Impact Assessment | ✓ | |
| 17 | Decommissioning Technology & Robotics | | No expertise available at the university |
| 18 | The Design of Safety Critical Systems | | |
| 19 | Management of the Decommissioning Process | | |
| 20 | Experimental Reactor Physics | ✓ | |
| 21 | Measurement Uncertainty | | Can be developed |
| 22 | Nuclear Security Facilities and Equipment | ✓ | |
| 23 | Nuclear Security Response Arrangements | ✓ | |
| 24 | Nuclear Security Practices and Nuclear Security Culture | ✓ | |
| 25 | Information Security and Cyber Security | ✓ | |
| 26 | Nuclear Knowledge Management & Communication | ✓ | |
| 27 | Nuclear Law/Environmental Nuclear Law | ✓ | Currently under development |
| 28 | Human Factors Engineering | ✓ | |

Continuing professional development (CPD)

Through Wits Commercial Enterprise Wits can provide a very wide range of bespoke Continuing Professional Development Courses (Short courses) as either;

- Certificate of competence
- Certificate of attendance

For more information regarding CPDs or other courses contact me.

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