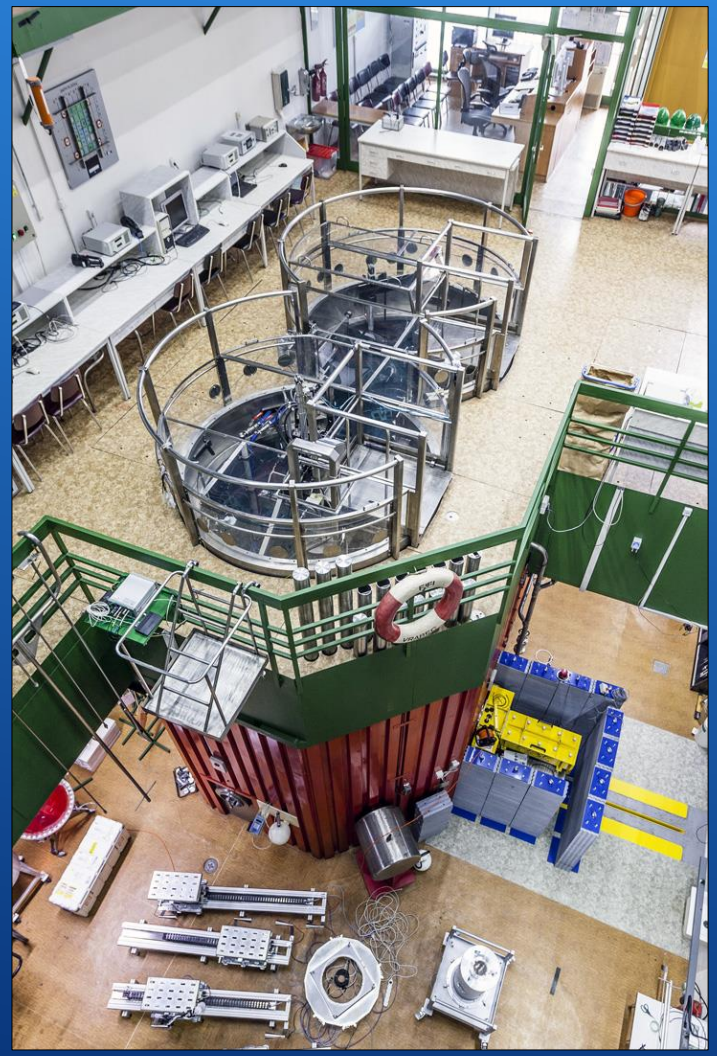
Radiation protection in practice

Czech Technical University in Prague, Experiment CTU12

Main topic: Radiation protection

Keywords: VR-1 reactor, radiation protection, personal monitoring, facility monitoring

Purpose: Radiation protection is related to protection of staff, society and environment from radiation generated by a reactor and its instrumentation. Even though potential hazard from radiation from a research reactor to the public and staff, researches, students or visitors is generally very small compared with that from power reactors, appropriate radiation protection programs should be established at any research reactor.



Level of exercise: ☒ Basic ☒ Advanced ☐ Complex
Level of education: ☒ BSc ☒ MSc ☒ PhD

What you will learn:
Experiments related to radiation protection are highly suitable for students studying nuclear engineering as their major curriculum and they are suitable for students studying various major engineering curricula. These experiments are also suitable for students studying archaeology, biology, medicine, earth or environmental sciences as the major curriculum in conjunction with the minor curriculum in use of nuclear analytical techniques.curricula.

Important information:
- Minimal size of student group: 4
- Maximal size of student group: 10
- Overall duration of the experiment (in wall clock hours): 3

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Possibility to perform experiment on demand: ☒ Yes ☐ No
Frequency of occurrence: On demand, ca 30 times/year
Examination modalities: Protocol, evaluation, discussion
Teaching languages: English, Czech

Pre-knowledge required: The students should be familiar with basic principles of radiation protection and radiation detection. It is recommended to carry out CTU02 - Neutron detection and CTU11 - Radiation detection in practice prior to this experiment.

Instruments required for exercise:

- The VR-1 reactor
- The VR-1 radiation monitoring system
- Portable radioprotection meters and monitors

Execution:

Hands-on experience with radiation protection gives chance to students to provide reactor hall monitoring during real reactor operation at several power levels. During this hands-on activity typical radioprotection devices are used such as surface contamination meters, airborne and liquid contamination monitors. Then students also have chance to carry out individual (personal) monitoring of anyone who is leaving the controlled area of the VR-1 reactor hall.

Limitations:

No particular limitation for this experiment, only general requirements for entry to research nuclear installation according to the Czech nuclear legislation should be fulfilled.