

Hands-on exercises on the Education and Training Reactor AKR-2

Dresden, September 2 – 14, 2024

The education and research reactor AKR-2 is a thermal, homogeneous, solid material moderated zero power reactor with maximum permanent power of 2 Watt. AKR-2 was completely refurbished in 2005 and is the most advanced zero power training reactor in Germany. The facility is equipped with a state-of-the-art digital I&C control system Teleperm XS.

The main purpose of AKR-2 and its design basis was and is the education of students in nuclear and reactor physics, in nuclear engineering as well as to teach fundamental knowledge and rules in radiation protection and radiation dosimetry.



Education and Training at AKR-2 will

- Make use of the capabilities of the AKR-2 training reactor.
- Contribute to the development of hands-on skills in nuclear reactor physics by making use of the AKR-2 reactor.
- Provide experiments that illustrate real applications of nuclear research reactors, such as the production of radioisotopes for medical and industrial purposes or the utilization of neutron activation analysis techniques for the identification of unknown samples.
- Provide a condensed introduction to nuclear reactor physics/kinetics that will help students better assimilate and understand the behaviour of nuclear reactor systems.

A successful participation at the reactor training shall contribute

- To understand fundamental problems of reactor physics.
- To apply this knowledge to the operation of a (zero power) reactor and to understand its behaviour.
- To learn and to apply fundamental rules of radiation protection.

The **pedagogical format** of the course is based on a **hybrid flipped classroom**. In this format, you need to complete some **preparatory work** (representing about 40 hours of work) before attending **interactive classes** organized over two weeks (representing 80 hours of work). Those classes are given in a hybrid set-up, with participants following the classes either onsite or remotely on the web. Research in engineering education demonstrated that such a teaching format leads to better learning outcomes and increases the interactions between the students and the teachers.

In order to **pass the course** and be issued a **course completion certificate**, you need to obtain at least 50 points (out of 100 max. points). All activities (both during the preparatory work and the interactive classes) are graded.

The course is given by:

Carsten Lange and the reactor physics group of the chair of Hydrogen and nuclear engineering of TU Dresden

The course is **free of charge**. Nevertheless, on-site participants must cover their **travel and accommodation costs** themselves.

Register before June 9, 2024, at:

great-pioneer.eu/register