

## Czech Technical University in Prague, Experiment CTU01

**Main topic:** Reactor construction, reactor operation

**Keywords:** VR-1 reactor, reactor construction, reactor operation

**Purpose:** The first step in carrying out experiments at a research reactor is the reactor visit to understand the reactor principle and design, to observe the reactor technology, its instrumentation and experimental devices which will be used later on during the experiments. During the reactor visit, the staff also explains the basic principles of a safe operation of a reactor from several points of view (such as nuclear safety, radiation protection or security, etc.). This first step is essential for further experiments because it provides basic familiarisation with the reactor and its specific rules which are necessary for further experiments.

**Level of exercise:**  Basic  Advanced  Complex  
**Level of education:**  BSc  MSc  PhD

### What you will learn:

Learning objective of the experiment is familiarisation with the reactor and its specific rules which are necessary for further experiments.

### Important information:

- Minimal size of student group: 4
- Maximal size of student group: 10
- Overall duration of the experiment (in wall clock hours): 1.5-2.0



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

**Pre-knowledge required:** This is usually the first experiment of the educational course carried out at the VR-1 reactor, pre-knowledge are not required.

### Instruments required for exercise:

- The VR-1 reactor

### Execution:

The VR-1 reactor visit covers all essential parts of the reactor, its instrumentation and experimental devices which are used at the reactor. The students walk through the reactor hall where they can see both reactor pools, its core with nuclear fuel and control rods. Detailed description of nuclear fuel is demonstrated on a fuel dummy. In the control room and I&C room, the students can see the reactor instrumentation and control (I&C) and at the lower reactor level they can see the water management system (pumps, tubes and water demineralisation unit) and the neutron source device. Reactor visit also usually covers demonstration of a reactor operation and demonstration of a safe shutdown of the VR-1 reactor.

### 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.

