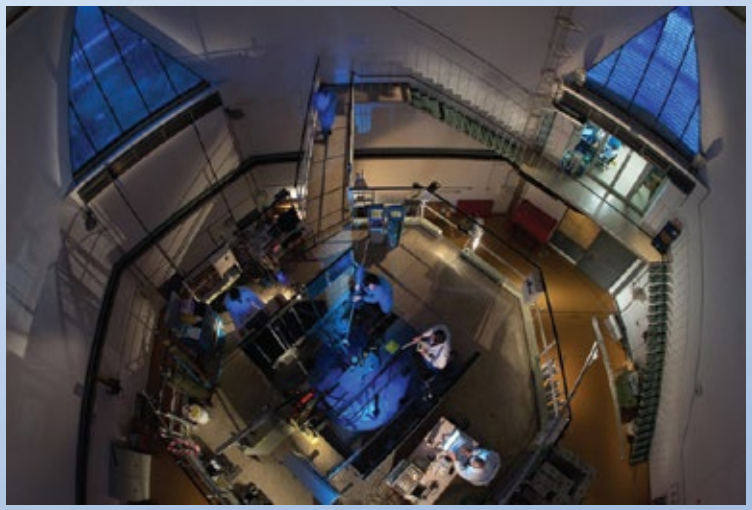
ENEEP

European Nuclear Experimental Educational Platform

Our Mission

The Mission of the European Nuclear Experimental Educational Platform (ENEEP) is to fulfill the needs of European users in order to significantly enhance their experimental education and hands-on activities in nuclear curricula, particularly in the field of nuclear safety and radiation protection.



About ENEEP

The ENEEP is an open platform for any European university or European research institute actively involved in education, training and competence building in the nuclear field. The ENEEP founding members are five institutes: BME Budapest, CTU Prague, IJS Ljubljana, STU Bratislva, TU Wien. All partners are heavily involved in experimental nuclear education, training and competence building. Four partners, namely CTU, TU, JSI and BME also have a nuclear training reactor. ENEEP has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No No 847555.

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ENEEP founding institutes

BME Budapest, Hungary

The BME Training Reactor, which started operation in 1971 and now is opereated by the Institute of Nuclear Techniques (NTI) of the Budapest University of Technology and Economics (BME), is a light water moderated and cooled reactor with 100 kW nominal thermal power.

The reactor core consists of EK-10 type fuel assemblies, containing 10% enriched UO_2 in metal magnesium matrix. The maximum thermal neutron flux in the reactor core is 2.7×10^{12} n/cm²s.The reactor facility is equipped with various laboratories. Neutron and gamma irradiations can be performed using the vertical irradiation channels, horizontal beam tubes, the large irradiation tunnel and the pneumatic rabbit systems. The reactor can also be used for the production of short-lived radioisotopes. Radiochemical laboratories and a hot cell support the training and research activities.

CTU Prague, Czech Republic

The Training Reactor VR-1 of the Czech Technical University in Prague (CTU Prague), which is in operation since 1990, is a pool-type light-water reactor based on low enriched uranium with maximal thermal power of 100 W. The reactor is equipped with standard experimental devices such as vertical and horizontal beam ports and a rabbit system and also includes experimental devices, developed especially for experimental education and training.

They comprise devices for the detection of delayed neutrons, study of reactor kinetics, study of void coefficients and temperature coefficients, etc.

The research at the reactor is limited by its low power, nevertheless the experimental instrumentation and connected laboratories significantly increase the reactor capabilities towards neutron activation analysis, detection of radiation and neutrons, physical security and instrumentation and control. In addition, the reactor control laboratory is available, too.

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IJS Ljubljana, Slovenia

The 250 kW TRIGA Mark II research reactor of the Jožef Stefan Institute (JSI), Ljubljana, has been in operation since 1966. It is a light water reactor, with solid fuel elements consisting of a homogeneous dispersion of 20% enriched uranium and zirconium hydride moderator, yielding the maximum neutron flux of around 2×10^{13} n/cm²s. A 40-position rotary specimen rack, two pneumatic tube transfer rabbit systems, as well as central thimble and four extra positions in the core are used for irradiation of samples. Additional experimental facilities include two radial and two tangential beam tubes, a graphite thermal column and a thermalizing column.

Regarding research, the most important fields are neutron activation analysis (NAA), irradiation of various materials for research purposes, beam applications, neutron radiography, verification of computer codes and nuclear data (e.g., criticality calculations and neutron flux distribution studies), testing and development of a digital reactivity meter, etc. The production of various isotopes intended for industrial, medical and research purposes is also an activity of the TRIGA reactor.

STU Bratislava, Slovakia

The Institute of Nuclear and Physical Engineering (INPE) of the Slovak University of Technology in Bratislava (STU) is is responsible for university education in the area of nuclear and physical engineering. INPE is active in various fields of nuclear research and development. There are currently 16 laboratories operated at INPE.

The laboratory of Reactor Physics consists of experimental workspaces for neutron emission rate, neutron diffusion length and Fermi age measurements with Pu-Be and Am-Be neutron sources and an apparatus for remote control and monitoring of experiments. Mössbauer Spectrometry Laboratory is used for non-destructive material testing with a wide diagnostic potential, applicable to all iron-containing materials. The Positron Annihilation Spectroscopy. Laboratory uses a non-destructive method for testing materials based on implanting positrons from a radioactive source into a sample and measuring the annihilation characteristics.

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TU Wien, Austria

The TRIGA Mark II reactor in Vienna is the central facility of the Atominstitut (ATI) of Technische Universität Wien (TU Wien). The reactor went into operation in 1962. The maximum power of the reactor is 250 kW (thermal) in steady state condition and 250 MW in pulse operation. Since it's comissioning, the reactor has averaged 220 operation days per year, without any outages. The maximum neutron flux density available in steady state operation in the reactor core is $10^{13} cm^2/s$.

In accordance with its purpose as a research reactor, the TRIGA Mark II is equipped with a number of irradiation devices, such as 5 reflector irradiation tubes, a central irradiation tube, a pneumatic transfer system (transfer time 3 s), a fast pneumatic transfer system (transfer time 20 ms), 4 neutron beam holes, a thermal column and a neutron radiography facility.

Course opportunities offered by ENEEP

ENEEP offers a unique opportunity of performing various types of laboratory measurements in a nuclear environment. A pilot course studying in fields related to nuclear sciences will be realized in Autumn 2021.

ENEEP will offer package and custom courses, furthermore individual activities to students at the Bachelor and Master education levels, Doctoral students, and professionals to gain or deepen their knowledge in the experimental nuclear field. Besides applicants with background in nuclear science and technology, the platform is also open to applicants who wish to develop multidisciplinary research connecting nuclear science and neutron applications with e.g. natural sciences, social sciences and humanities

Information about the selective procedure for the different categories (package course, custom course, individual activities) can be found on the web page (www.eneep.org)

For further information, please visit www.eneep.org

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